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Editor :
SUTINDER SINGH

RADHAKRISHNAN'S PHILOSOPHY OF EDUCATION

Shivendra K. Verma*

Education : Its Aims and Objectives

Radhakrishnan had a multi-dimensional personality. He was a philosopher, a thinker, an educationist, a teacher and also a diplomat. Philosophy and Education were the two main areas of his research. In the Preface to his book *True Knowledge* he has stated clearly that education has been his special interest. In his speeches and writings he has discussed a wide range of questions regarding education.

What is education ? What are its distinctive features ? Does it simply mean pumping information into empty vessels ? What's the place of 'value' in education ? Can it be taught ? These are interrelated questions. We would now analyse some of the answers to these questions within the general framework of Radhakrishnan's theory and philosophy of education which presents a picture of education as a creative process moving from 'being' to 'becoming', from 'knowing' to 'internalizing', from 'self-generated understanding' to a network of interactional activities leading on to *gyaan.*

Education, Radhakrishnan has said again and again, is not a process of pumping information into empty containers. Infact, the 'container-centred' philosophy of education has raised a number of problems. Firstly, knowledge does not mean just information derived from books. It can't be just someone else's story. It is not a point or product—total information gathered or received—but a process, a process of growth, of maturation triggered by a network of interactions between a particular, biologically-given complex system, the human mind—and the physical and social world. Secondly, teaching is not a unidirectional activity ; it is a bidirectional, interactional activity. Thirdly, the learners are never passive recipients of 'ready-to-use' packages of knowledge. They are alive, active participants in teaching-learning activities. A child's performance may give us the impression that he is reproducing 'information', but, in fact, what looks like reproduction is recreation, for a child's performance is like that of an artist, of a creative photographer, who has his own built-in 'camera', 'lens', and 'filter'. Children recreate the reality they perceive rather than passively 'receive' or 'reflect' it. One of the most remarkable properties of the human species is its repeatedly demonstrated capacity for transcending what is merely given, what is purely determined. Human beings' capacity to articulate a future tense—in itself a metaphysical and local scandal—their ability and need to dream forward, to hope, make them unique. The following extracts from Radhakrishnan's writings illustrate these points :

> "The true end of education is not the acquisition of information, important though it may be, or acquisition of technical skills, though they are very essential in modern society. One must have that superior outlook, that outlook which goes beyond information and technical skill."

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> "True education should deepen our insight: widen our horizon, create a meaningful outlook.....Plato held that the purpose of education was not as it were to fill an empty vessel but to turn the eye of the soul towards light".

> "*Jnana*", according to Radhakrishnan, "is not mere information, not mere scholarship, it is not mere criticism, it is education in depth .....*Jnana* without *vivek* is nothing".

> ' Knowledge is not something to be packed away in some corner of our brain, but what enters into our being, colours our emotion, haunts our soul, and is as close to us as life itself."

> "Unfortunately in our schools we look upon children as mere raw stuff on which we can impose our unjust views through our powerful wills".

> "The purpose of all education...is to provide a coherent picture of the universe and an integrated way of life. We must obtain through it a sense of perspective, a synoptic vision, a *samanvaya* of the different items of knowledge".

The purpose of education is to help human beings activate their built-in generative power, experience the joy of adventure and discovery, and fortify whatever creative impulse they may possess. Good education, according to Gandhi, is "that which draws out and stimulates the spiritual, intellectual and physical faculties of children". "The highest mission of education", Tagore wrote, "is to help us realize the inner principles of unity of all knowledge and all the activities of our social and spiritual life." The child, Aurobindo believed, must grow freely as an organic person. Every child is a self-developing being, and the role of both parent and educator is to advance self-development. The child has within himself everything that allows true education, and particularly a ceaseless activity, incessantly revived, in which he is totally engrossed, the activity of a growing being who is continuously developing and to whom, for that very reason, our help may be useful, but our direction is not necessary. This creative approach is entirely different from the view of the child as a mass of plastic substance which the teacher has to press into a desired shape. Underlining the importance of this approach, Radhakrishnan has said :

> "Democracy affirms that each individual is a unique adventure of life...The function of education is the guidance of this adventure to the realisation of the potentialities of each individual in the face of the actual world of men and things. It aims at the development of the individual, the discovery, training, and utilization of his special talents", for "democracy means belief in the inherent worth of the individual and the value of human life". "Education has the double aim of preparing for a particular vocation and also for citizenship in a democratic community, these two ends are not exclusive of each other". "Education must carry out at appropriate levels a combination of general, scientific, artistic, and technical education for students of varying abilities and occupational objectives". "The process of education as growth is continuous and lifelong...We learn from the teacher, by ourselves, from one another and from life or experience".

Education and Our Changing Society

Education cannot and should not be divorced from society. Its objectives should be defined and detailed in terms of local, social needs and global, social needs. This does not, however, mean that we should not have any ideals. What it means is a mutually enriching interaction between 'ideals' and their context-governed, societally-significant externalization. That is the reason why Radhakrishnan, drawing inspiration from the *Bhagvadgiitaa*, says that the 'yoga' of Krishna must be combined with the 'dhanus' of Arjuna : 'dhanus' of Arjuna symbolising 'action' and 'yoga' of Krishna symbolising contemplation which is essential before any work is done. Whitehead, one of the most eminent educational thinkers of our time, has also said : "We built cathedrals in our mind first before we built them up outside". To quote Radhakrishnan again, "all education is, on the one side, a search for truth; on the other side, it is a pursuit of social betterment". "Education should (therefore) give the children not only intellectual stimulation but a purpose". "Our educational system must find its guiding principles in the aims of the social order for which it prepares, in the nature of the civilization, its hopes to build". In Radhakrishnan's words, "we are building a civilization, not a factory or workshop, the quality of civilization depends not on the material equipment or political machinery but on the character of the men. The major task of education is improvement of character". His suggestion, therefore, was to plan an activity which transforms the schools into "places of work, experimentation, and discovery". He viewed education as "the great instrument of social emancipation by which a democracy establishes, maintains, and protects the spirit of equality among its members". This alone is not enough. "Education, according to the Indian tradition, is not merely a means of earning a living, nor is it only a nursery of thought or a school for citizenship. It is initiation into the life of spirit, a training of human souls in the pursuit of truth and the practice of virtue. It is a second birth, *dvitiyam janma*".

Roles of Teachers and Learners

Teachers and learners both have important roles to play in this activity. The teacher has more than one role to play. He has to play the role of a facilitator, of a leader of a cooperative enterprise in which development occurs through reciprocal give-and-take, the teacher taking but not being afraid also to give. According to Radhakrishnan, a teacher "must be a committed man, committed to faith in the future of man, in the future of humanity, in the future of the country and the world". "The profession of the teacher should not be reduced to a trade; it is a calling, a vocation, a mission". "(Teachers) must impart to the students zest for new experience, love for adventure in knowledge". "Love of the pupils is (therefore) the first essential quality of a teacher". Teachers must try to understand their pupils—their needs, their interests, their abilities, their wishes, their aptitudes and their problems. One remarkable advantage of such an attempt at understanding would be that it might make the pupils feel for the first time that there are friends around them, not a group of spies or inquisitors who are trying to catch them out. Children, young and old, need both security and liberty. A teacher must have enough sense to know when to interfere gently, otherwise there is no security. He must also know when to leave the child alone, otherwise there is no liberty.

Nature or *Svabhaav* (i.e., genetically determined principles) and nurture or *samskaar* (i.e., socio-culturally generated experiences) together help children grow on the basis of their *abhyaas* and *saadhanaa* in an atmosphere which may be labelled *satsang*.

Value Education

People all over the world have begun to feel that education generating scientific, technological, and material progress alone is not enough. There is something beyond this which we must achieve—this 'something' must help us transcend the barriers of caste, creed, religion, and territory and live like members of one great community in an atmosphere of love and peace. We have to find some way of preserving the essential life-generating properties of our spiritual heritage and at the same time making use of the scientific spirit of western civilization. Highlighting the aim of religious education, Radhakrishnan has said :

> "We are confronted by a universal need, by the yearning to transcend the narrow self into a world where the creation of more generous value is going forward. What is called religious instruction must bring awareness of the great historic insights. It must describe objectively that there have been and are answers which men have found to their most searching questions. It must arouse concern about those answers".

The question is : how do we build these 'values' and 'visions' into our system of education ? Teachers and students must realize that 'value education' is not just out there waiting for someone to come along and learn it. Value education surfaces in response to questions. And new values or old values in new forms result from the asking of new questions; quite often new questions about old questions. Here is the point; once you have learned how to ask questions—relevant and appropriate and substantial questions—you have learned how to learn and no one can keep you from learning whatever you want or need to know. The most important intellectual ability man has yet developed—the art and science of asking questions—is not taught in schools. Radhakrishnan, therefore, recommended those methods of teaching which involved self-activity, problem-solving, purposeful work experience etc. Whatever be our subject of study, our students should be trained to observe carefully, think effectively and use their judgement properly.

A Holistic Approach

Radhakrishnan has advocated a holistic approach to education. Education must look to the whole man. Human mind is a unity and all knowledge is interdependent. "The subjects we study must be part of a connected curriculum". There are subjects and subjects. It is sad that they are taught as autonomous units, and not as mutually reinforcing components of one system, They are taught as courses, unrelated to Man and his ever-widening setting—'inner' and 'outer' in interaction. "Education", according to Radhakrishnan, "is a search for integration, for wholeness". "All the branches of discipline have only one end—an 'insight' into reality with a capital R : *sarvasastra prayajanam atma darsanam*. "What we need today is the education of the whole man—physical, vital, mental, intellectual, and spiritual. A university should try to provide such a kind of education". "It is the function of a university to build human beings, strive to rid them of their vanities and egotism and emancipate their minds from petty prejudices and narrow loyalties". "Buildings do not make a university. It is the teachers and pupils and their pursuit of knowledge which make the soul of a university. The university is the sanctuary of the intellectual life of a country". "India is rich in natural resources and her people have intelligence and energy and are throbbing with renewed life and vigour. It is for the universities to create knowledge and train minds which would bring together the two, material resources and human energies". In this way Radhakrishnan has emphasised the role of universities in our national growth, in reforming the system of examination and designing courses for women and also for learners in rural and tribal areas. Regarding examinations Radhakrishnan Commission recommended that "a thorough study of the scientific methods of educational testing and appraisal be undertaken by the Ministry of Education, and at the universities with a view to applying the results of the study in Indian educational practices". Emphasising the importance of women's education, the Commission asserted that "there cannot be an educated people without educated women" and therefore recommended that "there should be no curtailment in educational opporttunities for women, but rather a great increase". The commission further recommended that "special attention be paid to the development of higher education in rural areas".

Language in Education

Language is central to the whole process of education and is the principal means of cultural transmission. It is also a very explosive tool and hence needs to be handled with care and understanding. In the growth of human beings as social beings, language has a very important role to play. It is through language more than any other means that experience is recorded, interpreted, and extended. "Effective use of language", says Radhakrishnan, "is a powerful help to good scientific thinking and especially to communication in science, as well as a necessity in the humanities". "Unless we learn to use and to organise words clearly and effectively our thinking will lack precision and accuracy". This assumes a special significance in a multilingual, urban setting in which it is not simply a problem of language choice, it is also a question of language ordering and language switch : What to say when and in which language, India has a rich repertoire of language and language varieties. The success of learners in a multilingual setting depends to a very great extent on their ability to switch their linguistic gears as many times as they play different personal, inter-personal, and institutional roles. What we must therefore try to achieve is to make people realize that a multilingual and pluricultural society needs more than one language for national cohesion, cultural integration, and social and geographical mobility. Different languages have different roles to play. The mother tongue has a role; the regional language has a role ; the official language has a role; English has a role; foreign and classical languages have their roles. They are complementary and can coexist peacefully.

In the report of the University Education Commission (1948-49) of which Radhakrishnan was the Chairman, it is stated that "the amount of language required will vary at different stages of education and in different parts of India. During grades one to five the pupils will learn only the mother tongue; in grades six to eight emphasis should be on the mother tongue and the federal language; from grades nine to twelve the study of English will be added to these. Students whose mother tongue happens to be the federal language will be required to study another classical or modern Indian language". It is clear from this that the Commission was in favour of, what is now known as, the three-language formula. It was in favour of developing the Indian languages and using them as the media of instruction. The Commission, underscoring the importance of English, said :

> "English must continue to be studied. It is a language which is rich in literature—humanistic, scientific, and technical. If under sentimental urges we should give up English we would cut ourselves off from the living stream of ever-growing knowledge....English is the only means of preventing our isolation from the world, and we will act unwisely if we allow ourselves to be enveloped in the folds of a dark curtain of ignorance".

Research

Research, according to Radhakrishnan, is as important a function of a university as teaching. Research and teaching should reinforce each other. "Universities have been rightly recognized as the fountainheads of knowledge and it is in their free atmosphere that we should look forward to vigorous pursuit of fundamental research".

"No amount of factual information would make ordinary men into educated or 'virtuous' men unless something is awakened in them; an innate ability to live the life of the soul". To reinforce this point, Radhakrishnan has drawn our attention to the following lines of T.S. Eliot :

> "Where is the wisdom we have lost in knowledge ?
> Where is the knowledge we have lost
> in information ?
> The cycles of Heaven in twenty centuries
> Bring us farther from God
> and nearer to the dust".

Radhakrishnan's philosophy of education, like that of Whitehead's may be viewed as a protest against dead knowledge and inert ideas. The main idea running through his books and papers can be stated briefly thus :

> "The purpose of all education....is to provide a coherent picture of the universe and an integrated way of life......It cannot be a collection of distracting scraps but should be a harmony of patterns.... It is a process of leading up the inward nature to its fulfilment. All true development is self-development."

□

Unemployment Among Educated Women and Entrepreneurial Qualities : A Critical Study

K.L. Pandit* A.S. Lanjewar**
A. Padhan***

Introduction

The problem of employment and unemployment can be examined in the context of three broad economic principles which have emerged over the last century or so. As almost exclusive of one another, these three theoretical standpoints are : the principles underlying Marxism; the approaches to the problem of economic development under free capitalist enterprise with certain checks from the state; and the Gandhian principle of economic development. So far as the political system based on Marxism is concerned we can think of the state assuming the powers of controlling the manpower resources and employing them in various economic enterprises which may or may not be resultant of the economic compulsion of the state at large. Even though Marxism has not led to any pronounced theory of employment which could be strictly compared with the various theories of employment implicit in western capitalistic enterprises, the Marxian ideology is fundamentally derived from the assumption that right to survival is associated with the duty to work including the manual labour, if the need be.

The cardinal principle under Marxism is from everyone according to his capacity to everyone according to his need. This principle is fundamental to management of economy based on Marxian philosophy without considering the Marxian dialectics and the theory of conflict between the labour and capital, and the labour theory of value. In a production concern it is the labour that generates production and the cost of each production is determined by the labour in it. The Marxian system presupposes the existence of the basic structure of production of goods and services for a given society, and since every producer is a consumer the exchange and distribution as the constituents of production process will be taken care of by the benevolent state power. Each consumer has to be a producer in the strict economic terms and so to that extent labour is generated. It is the responsibility of the state to use the available manpower in the production process according to ways it thinks are most suitable. Every able bodied individual in a socialist-communist system is guaranteed at least theoretically, a job without any consideration to the quality of job he would ordinarily crave for, or the job which he would have been entitled to, depending upon his capabilities and other psychological characteristics.

According to Gandhian theory every individual is supposed to put in some productive labour which may be related to any or all of the three basic needs—food, clothing and shelter. There is an obvious element of primitivism in Gandhian theory which emphasizes reduction of needs rather than the multiplication of needs. Man according to Gandhian Philosophy lives in order to realise the will of God, and the will of God is not amassing of material gains. The basic need of food, clothing and shelter can be met if all able bodied persons, restraining themselves from exploiting other human beings, are engaged in the production process, and once these needs are met, the man is supposed to keep himself engaged in realisation of God, the self-upliftment, self-purification, etc. etc. and whatever we may mean by it. Whatever scope for the consumption of goods and services relating to three basic needs of man are there under this system, that should engage all the able bodied persons in a society in the production process. Therefore, there is no unemployment whether of educated people or uneducated people. Education is basic, skills are basic, needs considered to be fulfilled are basic and anything beyond it, is a hopeless superfluity.

The Keynesian theory of employment which almost summarizes all the theories of employment propounded in capitalistic systems, recognizes consumption as the backbone of the total economic system. Consumer's sovereignty is the cornerstone of the western economic thought and the sovereignty of the consumer has to be unrestrained. Since the consumers are theoretically infinite it follows that the range of quality and quantity of the consumerism is also tending towards infinity, the scope of the production process is likewise tending to be infinite and so are the channels of employment. The very wellknown principle of employment which is contained in the equation Y=C+I, recognises a significant relationship between employment, and consumption and investment, without any extraneous constraints on the two variables involved in the right hand side of the equation. The consumer is finally to determine what to produce, and the production is not possible unless the investment in terms of land, labour and capital is made. So it is the alert entrepreneur who utilises his entrepreneurial qualities to bring about an ideal combination of the factors of production; and labour being one of the factors of production results in employment. So varieties, range and magnitude of employment will depend on the consumption.

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The theories of employment emerging out of economic thought from the contribution of Adam Smith, J.S. Mill and James Mill, are based on the principles of capitalist economy where everything is determined by unseen hand of competition and the role of the entrepreneur in bringing about an ideal combination of land, labour and capital in appropriate measures. The whole production process is generated by consumerism at different levels and of different types.

The Problem

The phenomenon of employment and unemployment in different states has been the concern of the politicians and politico-economic theorists. In India the problem of unemployment in general and the unemployment of educated youth in particular, has been drawing the attention of planners and politicians alike right from 1880's, i.e. since the present system of education borrowed from the west got implanted and established in Indian soil. Though the problem of unemployment and underemployment among the masses is an established fact the planners have been thinking about the problem of unemployment among the educated youth probably because of the latter's capability to assert as a group. In the beginning the problem of unemployment among educated youth was almost exclusively restricted to educated male population as the percentage of educated women in the age group of 14-35 was very low and the employment opportunities for educated women with different levels of education was much less. But eversince the number of college-going women increased particularly in major towns of the country with greater socialization of educational opportunities, the unemployment among women started being felt intensely. There have been quite a number of surveys which established the fact that education of women is no more an unnatural requirement determining the prospects of matrimony of the girls and thus helping them to afford upward social mobility. The surveys further show that all the school and college-going girls aspire for a job which may not only enhance the desirable matrimonial probabilities but also ensure the establishment of an economically secure and socially self-respecting existence of a young woman.

Thus the increase in the enrolment of the girls in colleges and universities and professional colleges together with their clamouring for a job has made the problem of unemployment among educated women still more difficult.

So far as the availability of jobs is concerned no government can provide jobs to all the job seekers in the government or semi-government establishments. The reasons are too obvious to be mentioned here, the electoral promises of employment for all notwithstanding. In a democracy the chances of employment are naturally determined by the forces of demand and supply, and competition among the employment seekers. If we look at this problem through another angle we can draw the conclusion that unemployment is not purely the function of the capability of the state power to create jobs—productive or unproductive, but also of the employbility and the other considerable psychological dispositions of the unemployed labour force. In the present paper an attempt is made to study the problem of unemployment among women with respect to their entrepreneurship qualities. This is an empirical study and the data have been examined with respect to the broad principles underlying different theoretical standpoints relating to economic system and the implicit/explicit theories of employment—Marxian, Gandhian and Keynesian, which have been discussed briefly in the introduction.

The Data

The data for the study were collected from the University Employment Information and Guidance Bureau, Nagpur University, Nagpur and from the District Employment Exchange, Nagpur. The unemployed women registered in these employment exchanges may not give the precise idea about the magnitude of unemployment in a population of given description but they are considerably valid indicators of nature of unemployment and the cumulative accumulation of educated unemployed manpower in different years. The data reveal the education level of unemployed women in Nagpur City and implicitly, these show as the indicators of employability also. The unemployed women registered with different education background in University Employment Information and Guidance Bureau and District Employment Exchange, and the percentage of women employed through them in the years 1980, 1984 and 1988 are presented in Table 1 and Table 2 respectively.

As Tables 1 and 2 reveal, it is not only that the women with just general education remain unemployed but also those with professional qualifications like medical, engineering, law and education also face the problem of unemployment. The employment exchanges neither gather information about the other skills than formal education obtained by the school, college and university educated women nor about the work experiences which they might have obtained. So a cross-section of self-employed women was selected with a view to study the entrepreneurial qualities of women, the basic objective being to study whether there was any relationship between entrepreneurial qualities of women and employment in the Indian context.

It was hypothesized that unemployment irrespective of the sex was basically the function of the resources and entrepreneurial qualities of the manpower available in the labour market. The phenomenon of prevailing unemployment may reflect the socio-economic compulsions faced by men and women as separate groups. Men may seek employment at any cost as they have great familial responsibilities whereas unemployment may not be as deep and severe a stigma for educated women because women in ordinary Indian families are considered as a property to be taken care of rather than to be set free as individuals to try different socio-economic endeavours.

TABLE 1

Educated unemployed, women registered and employed through Nagpur University Employment Information & Guidance Bureau

	1980			1984			1988		
Discipline	Nos. Regd.	Nos. Empld.	%	Nos. Regd.	Nos. Empld.	%	Nos. Regd.	Nos. Empld.	%
Arts	233	5	2.15	261	1	0.36	248	4	1.61
Science	63	11	17.46	18	8	44.44	136	6	4.41
Commerce	24	2	4.17	39	1	2.08	93	0	00.0
Education	241	8	3.32	314	80	25.48	584	39	6.68
Medical	27	3	11.11	109	8	7.34	115	7	6.09
Engineering	1	0	0.00	15	4	26.66	23	1	4.35
Law	3	0	0.00	12	2	16.17	3	0	0.00
Others	54	13	24.07	59	15	25.42	87	1	1.15
Total	646	41	6.35	827	119	14.39	1289	58	4.50

TABLE 2

Educated unemployed women registered and employed through District Employment Exchange, Nagpur

	1980			1984			1988		
Discipline	Nos. Regd.	Nos. Empld.	%	Nos. Regd.	Nos. Empld.	%	Nos. Regd.	Nos. Empld.	%
Matriculation	2066	30	1.45	3784	84	1.29	1550	13	0.56
12th Std.	457	0	0.00	883	8	0.10	593	28	4.72
B.A.	348	0	0.00	330	7	2.12	126	4	3.17
B.Sc.	83	0	0.00	146	12	8.12	74	1	1.35
B.Com.	26	0	0.00	166	4	2.40	69	5	7.24
Total	2980	30	1.01	5309	115	2.17	2412	51	2.11

However, a general observation of the unemployment data in the study shows that mass of the educated unemployed women long for a job which is of predominantly white collar type. The investigators thus presumed that the roles assigned to women in traditional Indian society together with the lack of entrepreneurial qualities are probably responsible for unemployment. The major inquiry contained in this paper is based on that assumption.

Tools

Two questionnaires prepared by the investigators were used to gather information regarding the qualities of entrepreneurship like risk taking, mobility, achievement motivation and adjustment with other people—one for the educated unemployed and the other for the educated self-employed. The study being first of its kind, many characteristics of entrepreneurship could not be considered. However, the decision regarding the selection of above four characteristics was taken in consultation with the experts in economics, sociology, psychology and education as such.

Sample

The systematic sampling technique under the probability design was used to draw a sample of 60 educated unemployed women as well as of 60 educated self-employed women. The educated unemployed women were selected—30 each from the lists of unemployed registers available in District Employment Exchange, Nagpur, and University Employment Information and Guidance Bureau, Nagpur University. The self-employed educated women were selected from the enrolment register maintained by the Mahila Udyogini Swayam Seva Sanstha, Nagpur for the year 1988.

Entrepreneurship Qualities in Educated Self-Employed Women

The data were analysed to ascertain the entrepreneurship qualities in the educated self-employed women. The description below reflects the education and training background of the educated self-employed women and the four entrepreneurship qualities that they possibly possess namely; risk taking behaviour, achievement motivation, mobility, and adjustment with other people.

Out of the 60 respondents as educated self-employed women 34 were trained in their respective trades—tailoring, embriodery, typing, xeroxing, sweater knitting, cooking, etc. and 26 were untrained in their trades. About the education of respondents 28 were undergraduates, 26 were graduates and 6 were post-graduates. Fifty-two of them started their business as the single entrepreneurs while 8 had started their concerns on a partnership basis.

Risk-taking

About 77 per cent respondents were ready to take up new business or had other plans in case they fail in their present ones. Mostly they had transaction of their business through cash as well as credit. Sixty per cent of the respondents did not expect any situation that they would have to close their business. About 53 per cent of respondents shoulder the risk of giving credit while 83 per cent have engaged servants to assist in their work.

Achievement Motivation

About 54 per cent of the respondents were satisfied with the present situation of their business; 54 per cent showed keen interest in new and challenging work; and 83 per cent did not manifest any jealousy towards other persons in doing similar or other work. About 90 per cent respondents viewed that they were not satisfied unless the work was enterprising; 96 per cent expressed strong will to obtain some distinction in their business by dint of their initiative and leadership qualities; 97 per cent were ready to sacrifice their time and money for any work of choice; and 80 per cent held that domestic problems would not hamper their business work. About 76 per cent respondents had plans to expand their concerns with a view to enhancing their economic prospects.

Mobility

About 70 per cent respondents put no objection to go anywhere for their business; 63 per cent felt no problem to work even in the unknown surrounding, and all the respondents abhored idleness as a scourge. About 47 per cent respondents were also engaged in some prior business than the present one; their change of business was attributed to one or more of the following : (i) search for greater profitability; (ii) perenniality of the job, and (iii) utilization of the skills acquired from vocational training. Besides, the interjob mobility was found to be associated with the self-employed women's understanding of the economic forces operating within their economic concerns.

Adjustment with Others

About 90 per cent respondents deeply considered others' advice in work; 96 per cent were found to be less inclined to bear any ill will against other persons; 83 per cent found their assistants to be cooperative in work; and 54 per cent got voluntary cooperation from other persons. As far as the rivalry between the small-scale entrepreneurs and the bigger concerns was concerned, the respondents of the study did not find themselves apprehensive of any anger emanating from the big concerns. And if there was any possibility of conflict, 40 per cent of the subjects expressed the view of seeking protection from the law enforcing bodies.

Educated Unemployed Women and Self-employment

The description below shows the education and training background of the 60 educated unemployed women and their interest and efforts for public/private sector jobs as well as for self-employment.

The 60 unemployed educated women were endowed with the academic qualifications ranging between 12th standard to postgraduate university degrees. Forty eight of them had also undergone vocational training like typing, stenography, teacher training, telephone operating etc. About 61 per cent of the respondents viewed that their study was solely directed to find a job while 49 per cent held that their education was not essentially for getting a job as education yielded self-satisfaction to them. As many as 68 per cent of the subjects opted for government jobs, as compared to 3 per cent for private jobs and 29 per cent for both public and private jobs. About 63 per cent of the subjects longed for clerical jobs followed by 18 per cent each for administrative and teaching jobs. While 28 per cent of respondents were confident of getting jobs of their choice, 32 per cent did not have such expectation. The respondents' confidence of getting jobs of their choice was based on the higher academic qualifications/training or possession of some experience in the line.

About the expectation of payment for a job the highest number of respondents, 26 were ready to work with the lowest payment level Rs. 500-1000; and only 6, the lowest number of respondents for the higher level of payment Rs. 2001-2500. Provided with a job, as many as 91 per cent of respondents were ready to move beyond Nagpur. About 75 per cent of subjects strongly favoured reservation of jobs for women and 91 per cent expressed a strong will for getting a job. Inclined to get a job, 50 per cent of the respondents had registered their names in District Employment Exchange; 25 per cent in University Employment Information and Guidance Bureau; 31 per cent in Social Welfare Centre and 6 per cent in Caste-Tribe Department in Nagpur.

About 95 per cent of respondents used to read the "Wanted" columns in newspapers and also a 73 per cent watch employment news bulletin on T.V. However, 88 per cent of the respondents were not much aware about the self-employment schemes implemented by the government. About 53 per cent had shown interest in self-employment but hardly five per cent of them had ever tried for it. In case of not getting a job 53 per cent of the subjects would like to go in for self-employment and 6 per cent for further education/training while others did not have any plan. The respondents having undergraduate qualifications have been waiting for jobs from 5 to 17 years, those having graduate qualifications from 1 to 10 years, and those having postgraduate qualifications from 1 to 6 years.

Discussion

A comparison of the details regarding the educated self-employed and educated unemployed women would make it clear that the latter group basically suffer from lack of awareness regarding the possibilities of self-employment. This lack of awareness can possibly be attributed to their unconscious resistance to doing something economically significant on their part as they have been found overwhelmingly craving for white collar jobs. The phenomenon is operative in almost all urban cultures. The situation could be presumed from the recent statistics of Goa that over 80,000 workers are on the live registers of the state employment exchange, including a high proportion of them with SSC and less than SSC qualifications whereas it is difficult to find local labour to work in farms, roadways and construction. The skilled manpower has to be imported from the other states whereas the educated unemployed in Goa wait for white collar jobs in public sector (Singhal, 1990). It seems that the so-called educated youth, like the present sample, lack the will to start an economic concern for earning their own livelihood.

Besides the lack of awareness, the most obvious handicap with the educated unemployed women is the lack of mobility. The concerned subjects in the study are willing to go to other place for a job but not for self-employment, and since they are unemployed, the mobility from one economic concern to another is out of question. Even though some of the educated unemployed have expressed an inclination to go in for the risks, such possibilities are only but hapothetical.

Although the general level of achievement motivation among the educated women, irrespective of their prospects of employment, remains low, that of the educated unemployed women is still lower. As a matter of fact most of the educated women are aware of their economic needs which stimulate them universally to think about a job but the unemployed ones opt for soft options like the job of a clerk or a teacher. It was found that the waiting period for employment among the unemployed women varied between 1 to 17 years, but such waiting did not prove a significant deterrant to their optimism of landing a job. Besides, the unemployed showed greater ignorance and lack of understanding of the economic forces which determine the job possibilities of young women.

Viewing the data with respect to the theory of employment it is evident that Gandhian principles are more relevant in the Indian context than Keynesian or Marxian. Both Keynesian and Marxian theories are relevant for an economic system where the entrepreneur has enough will to start an economic concern and generate employment. The magnitude of consumption being the backbone of any scheme of generation of employment we can draw the conclusion that the scarcity of goods and services is a stark reality, but the scarcity of goods in itself is not enough unless there is the purchasing power of the masses to sustain the demand. So the consumption becomes meaningful only when the demand is there and the demand becomes non-existent in the absence of purchasing power. To see that Keynesian principle works in order to create possibilities of employment among the unemployed masses, this requires planning at macro level. In contrast to Keynesian model Gandhian model can be thought of as more suitable for micro-economic concerns where the local needs and the relevant production process can be examined. But the employment seeking people need to go in for greater risk which is essential for any economic concern whether at micro level or macro level.

To sum up, most of the educated women lack the entrepreneurial qualities to a great extent whether employed or unemployed but the unemployed educated women seem to be the victims of the requirements of entrepreneurial qualities to a greater extent. Comparatively, they have lower level of achievement motivation, they decline to take risk and are generally less mobile and present a picture of helplessness which characterises the unemployed youth. It is seen that more than half of Europe's 16 million jobless who have been out of work for more than a year, and a third for more than two years; often lack the required skills and are living in the wrong areas (The Economist, 1990). The universities and colleges need to arrange the dissemination of occupational information to the students during their education besides providing experience to them which are conducive to the development of aforestated entrepreneurial qualities. ☐

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Convocation

Agriculture in Orissa

Dr. N.S. Randhawa, the then Director General, Indian Council of Agricultural Research and Secretary, Department of Agricultural Research and Education, Govt. of India, delivered the Convocation Address at the 22nd Convocation of the Orissa University of Agriculture & Technology, Bhubaneswar. After delineating the agricultural scenario of Orissa as that of "low agricultural productivity which is linked with erratic monsoon, frequent occurrence of natural calamities like drought, cyclone and floods, and poor resource base of the people", Dr. Randhawa proposed a developmental strategy for the agriculture of 21st century. "The priorities for research approach in the coming years will have to pay greater attention to provide technology for practising sustainable agriculture" he added. Excerpts

Orissa ranks the 10th largest State in India with a geographical area of 15.54 m.ha , divided into 13 administrative districts, 314 development blocks encompassing 51639 villages. According to 1981 census, population of the State was 26.37 million with density of population of 169 as against the national average of 221/sq. km. The working population constitute 32.8 per cent of the total state population of which nearly 75% are farmers and agricultural labourers. The backward classes comprising of SC and ST constitute 14.7% and 22.5% respectively of the total population of the State.

Landscape

Physiographically the State is divided into four regions namely Northern Plateau, Central Table Land, Eastern Ghat and Coastal Region, comprising 23%, 23%, 36% and 18% respectively of the total area. The soil survey work in the State has recognised the occurrence of 8 soil types namely red soils, red and yellow soils, black soils, coastal alluvium and deltic alluvium, laterites, mixed red and black soils and brown forest soils. The soils are generally poor in nutrients status, deficient in organic matter and high in iron and manganese in the case of laterites.

Climate

Agriculture in the State is still a gamble with monsoon. Although the average rainfall of the State is about 1500 mm., the distribution of rainfall is both erratic and uneven. The climate is, therefore, characterised as sub-tropical, hot dry to moist sub-humid with 65 rainy days. Except the monsoon period (middle of June to 3rd week of October) the evaporation exceeds rainfall and the plant cover is exposed to varying degrees of soil moisture stresses. During the, monsoon period, particularly in the low lands, drainage become an important problem.

Over the period 1901 to 1975 the State has witnessed major droughts during 13 years and equal number of floods often coupled with cyclonic weather. The frequency of drought has particularly increased after 1950. It is estimated that seven districts have more than 20% of the area which is prone to drought while 8 6 lakh ha. in seven river basins are prone to the flood damage.

It is estimated that the number of operational holdings is 33.28 lakhs with the net cultivated area of 6 28 m. ha. and gross cropped area of 8 7 m. ha. representing a cropping intensity of 139% as per 1984-85 Land Use Statistics. The average size of holding is 1.6 ha. The Scheduled Caste and Scheduled Tribes constitute 4% and 13% of the total operational holdings.

Irrigation

The net and gross irrigated area in 1985-86 was 16.73 and 21 59 lakh hectares. Out of the ultimate irrigation potential of 3 6 and 5.4 m.ha. through surface and ground water resources respectively, only 54 and 5% of the same have so far been exploited. The flow irrigation system in the State has an inbuilt disadvantage of low efficiency. The contribution of the irrigated areas to total foodgrain production indicates that the level of Productivity is not even 2 tonnes/ha., which is far from a satisfactory level that one would expect from irrigated agriculture. This underlines the urgent need for practising wholesome package of production inputs alongwith sound water management practices. An integrated approach of lift and flow irrigation in the same ayacut will greatly serve both as remedial and preventive measures against waterlogging and improve irrigation efficiency. There is a large scope for the exploitation of the existing ground water resources through installation of tubewells and open wells in different parts of the State

The share of agriculture and allied sector contributes around 59% on an average to the State domestic production. Rice is the main crop and its acreage accounts for almost half of the gross cropped area. The area under pulses accounts for 20% of the total cropped area and that under oilseeds is around 11% of the total area.

The low productivity of major crops may be linked to the very low level of fertiliser nutrient use in the State. The nutrient consumption in 1988-89 was 16 kg/ha of gross cropped area as against the all India average of 62. The N : P ratio is also wider, (3.7), as against all India ratio of 2.7.

Livestock

According to 1982 census the cattle population in Orissa was 1.30 crores, of which 16.65 lakh were in milch category. Orissa possesses mostly non-descript cattle. The buffalo population of the State was 13.33 lakhs out of which 1.81 lakh were in milch category. The goat and sheep population in the State were 49.3 lakhs and 19.9 lakhs respectively. Orissa possesses very good meat type goats. The poultry population of the State was 1.05 crore and 3.2 lakhs were ducks. During 1987-88, the quantum of milk production was 3.94 lakh tonnes and the egg production was 3.44 million. The productivity of milk per breedable female is the lowest in Orissa and when compared with a progressive state like Punjab represents a 15 fold difference in productivity.

Orissa has vast scope for expanding both fresh and brackish water fish culture. The present level of fish catch is estimated to be only 52,000 tonnes each of Inland and Marine Fish.

Agricultural Research Base

This university has made impressive progress inspite of limited resources and facilities available. In order to strengthen the research base of the university, the ICAR has initiated since 1983 under NARP, setting up of three regional research stations and three research sub-stations. The ICAR Institutes, such as Central Rice Research Institute, Central Institute of Fresh Water Aquaculture, Bhubaneswar are the best of their kind in South-east Asia. Besides there are regional stations of the Central Tuber Crop Research Institute, Central Soil and Water Conservation Research, Demonstration and Training Instt. and Water Technology Centre for the Eastern Region. There are also proposals to establish sub-stations on Horticultural Crops, Forage Crops, Poultry, Sheep and Goat. In the past we could not establish several new research stations on account of non availability of suitable land or imposition of conditions which are not in line with the guidelines developed by ICAR. I would, therefore, request that the State authorities may fall in line with the rest of the country for provision of land and other facilities for establishment of federal institutions.

The annual budget for 1989-90 for the university is about Rs. 6.85 crore. During this year, the State Govt. has raised annual plan grant to OUAT from 1.5 crore in 1988-89 to 2.4 crore in 1989-90 and are earmarking Rs. 5.5 crore for 1990-91. I welcome this gesture and appeal to the State Govt. to provide additional funds to meet the requirements of the University atleast to the level of those in the neighbouring States so that the University could maintain the quality of teaching, research and extension activities and modernise its laboratories so that the scientific staff of the order of 354 under State Sector and 318 under ICAR sponsored projects in the University can play a more promising role in shaping the University to meet the challenges of the coming decades.

Developmental Strategy and Prospects for the Agriculture of 21st Century

As indicated in the preceding paragraphs the agricultural scenario indicates in general low agricultural productivity which is linked with the erratic monsoon, frequent occurrence of natural calamities like drought, cyclone and floods, and poor resource base of the people for a long time. Productive use of natural resources like minerals and forest wealth as well as creation of industrial infrastructure have not been able to reduce pressure on agricultural sector. Inspite of immense natural endowments such as large cultivable tracts, low population density, surface and underground irrigation potential, adequate rainfall, plenty of sunshine, mineral deposits, power grids and industrial potential, there is still large scale unemployment and economic backwardness.

We have achieved success in the earlier plans in the agriculture front and the tasks ahead are more complex and challenging. I hope the training and scientific knowledge that you have acquired will keep you abreast to overcome these challenges.

The priorities for research approach in the coming years will have to pay greater attention to provide technology for practising sustainable agriculture. I suggest that the following areas of research may be given greater stress by the University :

1. Refining climatically efficient cropping zones and perfecting the crop production technology by detailed characterisation of climate, soil and water resources. The National Bureau of Soil Survey and Land Use Planning of ICAR and the State Govt. are now engaged in preparation of soil resource inventory and refining the agro-ecological zones based on the potentials and problems associated with various soil types. This would facilitate in redefining the efficient cropping zones and soil-based transfer of crop production technologies.
2. Introducing the concept of diversification in agriculture from rainfed rice and minor millets to more remunerative crops such as pulses, oilseeds, fibre crops, forage crops, tuber, spices and plantation crops.
3. Perfecting efficient soil and water conservation and crop production technology to replace shifting cultivation and developing a socially acceptable 'hill agriculture system' in the fragile areas of Northern Plateau and Eastern Ghat regions. There is urgent need to develop sustainable farming system practices suited to the socio-economic and cultural milieu of the tribal populations in the hill regions of the state who are at present practising even less than subsistence agriculture. Agricultural scientists and social scientists should jointly address their problems to improve their lot.
4. Developing improved dryland agriculture practices including contingency cropping strategy for aberrant weather situations and demonstration of these practices on watershed basis
5. Improving water management and irrigation water use efficiency in the command areas, flood prone areas and the low land areas.
6. Increasing the income generation capability of small and marginal farmers through adoption of viable farming systems incorporating dairying/sheep and goat husbandry/fish culture and alternate land use systems such as agro-forestry, silvipasture and agri-horticulture.
7. Integrated Pest Management Strategy for major cropping systems so as to reduce excessive dependence on pesticides.
8. Developing integrated nutrient strategy for major cropping systems with the emphasis on indigenous nutrient resources and recycling of organic wastes and crop residues.
9. Breeding for tolerant plant varieties which can adapt to stress situations such as high salinity, very low pH and toxicity of aluminium and iron.

Since the research methodologies to be adopted in the coming years would be more complex and multi-disciplinary in nature, the training of the Postgraduate students has to be oriented on systems and modelling approaches with a blend of existing disciplinary approaches and new frontier science areas such as biotechnology, remote sensing, computer simulation and modelling, informatics and modern methods of communication and delivery systems.

Extension Education

Besides conducting research, it is essential that the useful research findings should be made available to the farmers quickly to help them solve their problems. It is heartening to note that the University has been conducting various extension education programmes of the ICAR, the State Department of Agriculture and Animal Husbandry. I wish to plead to the scientists to make maximum use of these extension programmes by feeding their technologies through the extension system and develop a strong, two-way channel for getting feedback from the fields. The National Demonstrations Project, the Operational Research Projects, the Krishi Vigyan Kendras (5 in Orissa) and the Lab-to-Land programme of the ICAR are important links between the scientists and farmers. The linkages between these extension activities of the University and ongoing extension programmes of the State Agricultural Department are very vital. The University Extension System should play a complementary role to the main extension system of the State Government. ☐

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—**Qualifications** : Master's degree and a very good knowledge of German with at least two years of teaching experience.

This is an advance announcement to give prospective candidates sufficient time to prepare their applications, especially to get placements at German universities/research institutes. The formal offer will be made in May 1990. It is expected that it will be officially announced and advertised by the Government of India with full details in June/July 1990. Application forms will then be available with the Min. of H.R.D./UGC. **No Direct Application will be Entertained by the DAAD.**

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Enhancing Standards of Medical Education

The National Board of Examination (NBE) has taken steps to generate a national debate on the need for uniform and high standards in higher medical education in the country. Established in 1975, the NBE became an autonomous body of the Ministry of Health in 1982. Its aim is to elevate the standards of postgraduate examinations in medical and dental subjects, thus ensuring that the qualifications awarded by the NBE are rated highly in India and abroad.

The NBE conducts postgraduate examinations at the national level in 39 medical disciplines including super specialisations such as Cardiology, Neurology, Neurosurgery. There are well defined procedures for inspection and accreditation.

The accreditation of non-teaching hospitals enables the utilisation of the facilities and expertise available in such hospitals. This provides an opportunity for specialist qualifications to be acquired by those medical graduates who do not get admission to postgraduate degree courses.

The NBE has constituted Speciality Boards in 30 subjects—2 in Basic Sciences, 15 in Medical Speciality Group, 11 in the Surgical Speciality Group and 2 in Community Medicine Group. Each of the Speciality Boards consists of 5 to 7 experts. The major function of the Speciality Boards is to advise the NBE on academic and technical matters such as framing of syllabi and helping standardisation of the pattern of theory, practical and clinical examinations. Other functions include recommending panel of examiners and panel of inspectors for the purpose of evaluation of candidates, assessment of training facilities in speciality and supportive services available at the institutions seeking accreditation and considering eligibility of candidates in some disputed cases.

Yet another important activity of the Board is to generate well structured multiple choice questions in various formats for building up a well stocked question bank to be used in primary examinations.

Refresher Course in Economics

The Academic Staff College of Andhra University organised the first Refresher Course in Economics for senior lecturers working in the affiliated colleges of Andhra and Karnataka States. Inaugurating the programme Prof. B. Sarveswara Rao, former President of Indian Economic Association, mentioned that the pursuit of Higher Education was a theoretical adventure and the mind was the basis for this adventure. Economics, he added, had taken up this task on this adventure and it had equipped itself with a large tool box and emerged as one of the first grade social sciences during the last 150 years of its existence. However, economists had been concentrating only on one paradigm, that is, the market economy. What will happen if one system is substituted by another, he asked. He said that environment was an issue that takes into consideration about the absolute scarcity whereas Economics was only concerned about relative scarcity. He therefore urged the economists to concentrate on issues like environment, energy etc. which were now the basic issues for discussion. He congratulated the Director and the Course Coordinators of the college for selecting economics of energy and environment as one of the thrust areas of the programme.

Dr. K.V. Sivayya, Commissioner of Higher Education, Govt. of Andhra Pradesh, was the chief guest at the inaugural function. He expressed his satisfaction with the working of the Staff College which would bring some changes in the quality of teaching. In this connection, he revealed that the Government of Andhra Pradesh was instituting about 100 best teacher awards for this year in order to encourage the teachers who were committed to the profession. He also mentioned the economic issues that have been discussed in the Indian Epics and appealed to the teachers of economics to refer to these while discussing economics in the classroom.

Prof. K.V. Ramana, Vice-Chancellor, Andhra University, who presided, explained how the University had argued with the U.G.C. to get this Refresher Course in Economics as this University had a well-established School of Economics and there were good teachers and researchers in and around Andhra University to take up this task. Prof. M. Jagadeeswara Rao, Course Coordinator, explained the four thrust areas identified to organise Referesher Course for 4 weeks.

Central Aid for Teresa Varsity

The University Grants Commission has declared the Mother Teresa Women's University, Kodaikanal, Tamil Nadu, as an institution fit to receive central assistance. The University was accordingly given Seventh Plan development grants before March 1990. The Commission has desired that the university introduce teaching programmes at the postgraduate level.

The Mother Teresa Women's University was established in 1984 for research in women's studies and providing consultancy and monitoring services for welfare scheme relating to women.

The University runs academic programmes in eight disciplines. These are economics, education, English, family life management, historical studies, psychology, sociology and Tamil women's studies.

The University aims at generating a more comprehensive, critical, balanced and intellectual understanding of women's perception of their own lives, struggle and inspirations and structures of inequality.

The academic programme is basically inter-disciplinary in nature and focuses on the problems of social exploitation of and gender prejudices against women.

Strong emphasis is placed on research in all disciplines in women's studies to provide a research base for people interested in women's issues and working in the fields of community work, social welfare, women's services, law and health care.

Media research activities are also carried out in the University's research cum extension centres at Madras, Madurai and Nagercoil.

Social Work Educators' Forum

The 'Social Work Educators' Forum (SWEF) established at the Tata Institute of Social Sciences, Bombay in March, 1989, aims to be a means for social work educators at the institute to periodically review, discuss and undertake tasks regarding different aspects of (1) social work education, (2) social work research, and (3) roles, functions and development of social work educators, in order to strengthen the social work profession. The forum's membership and activities are open to all institute faculty interested in its objectives and activities.

The SWEF has presently formed two task groups. The Task Group on Social Work Methods Courses aims to achieve better interlinkages between the core social work courses, enhance effectiveness of teaching, sharing of bibliographies, teaching tools and methods, and develop a holistic approach to social work intervention which will be relevant to the social reality. The Task Group on Social Work Research aims to give a fresh look at social work research by exploring alternate methodologies, reviewing the curriculum for the Master's degree programme in Social Work and promoting utilisation of research in teaching, policy making and programme planning.

The SWEF holds periodic meetings to discuss and share ideas through presentations, workshops and discussion groups.

Roorkee University Khosla Annual Awards-1990

University of Roorkee, Roorkee invites applications for two Khosla Research Awards, four Khosla Research Prizes and two Khosla Research Commendation Certificates, awarded from the Roorkee University Khosla Awards Fund for original and outstanding research work in Engineering, Technology and Applied Sciences carried out in India. Only the published research work including that in the proceedings of Seminars / Symposia during the calendar year 1989 will be considered.

1. The Khosla Research Awards comprise :
   (a) One Award of Rs. 2500 cash and a gold plated medal may be made for research work of an outstanding nature, provided that such work constitutes an original contribution to engineering, technology, sciences or allied subjects.
   (b) One Award of Rs. 1500 cash and a gold plated medal may be made for the best research work which should be of the nature of original contribution to engineering, technology, sciences and allied disciplines but not outstanding enough to qualify for the Khosla Research Award of Rs. 2500 cash and a gold plated medal.
2. The Khosla Research Prizes consist of :
   (a) Two Prizes of Rs. 1000 cash and a Silver Medal each.
   (b) Two Prizes of Rs. 500 cash and a Silver Medal each.
3. Two Commendation Certificates may be given for highly commendable work in engineering, technology, sciences and allied subjects with a view to develop outstanding merit in these disciplines.

Studies, research workers, faculty members and staff of the niversity of Roorkee and alumni the University of Roorkee or predecessor, Thomason College Engineering are eligible for wards. The candidate should ibmit four copies of the reprints f the research paper alongwith ie application form obtainable rom Dean (Academic), Univerity of Roorkee, Roorkee-247667. he research papers must have een published in the calendar car 1989. Last date for receipt f complete application is 15th May, 1990.

Higher Pay for IIT Teachers

The Government of India is eported to have decided to evise the pay-scales of the teachers of the Indian Institutes of Technoogy, the Institute of Management, he Indian Institute of Science, Bangalore, and the National Institute of Training in Industrial Engineering. There will now be only three cadres in the pay-scales —Assistant Professor (Rs. 3,700—5,700), Associate Professor (Rs. 4,500-6,300) and Professor (Rs. 5,100-7,300).

The Government has also decided to create 100 positions of eminent professors in the scale of Rs. 7,300-7,600 in the entire technical education system, including IITs. The eminent professors will continue to work up to the age of 65 years and the selection for these positions will be made by the Government.

The revised pay-scales will be effective from January 1, 1986 and benefit about 3,000 teachers in IIT faculties.

Awards for Excellence in Research Work

The Ranbaxy Research Foundaion, a leading Pharmaceutical Company, has istituted two annual Awards of Rs. 50,000/- (Rupees Fifty Thousand only) each for the outstanding Research Work in the fields of Medical Sciences and Pharmaceutical Sciences. The Foundation invites nominations for 1989 Awards which should be sponsored by the Head of the Institution himself. Indian Nationals in India and abroad are eligible for the grant of these Awards.

There is no special Nomination Form for the purpose. However, nomination papers should include : Ten Copies each of Biodata, List of Publication/Research Papers. Statement of Research Achievements already rewarded, Details of Research Work for claiming Award and ten sets of relevant publications/Research Papers.

Further details/clarifications can be obtained from Mr. B.K. Keayla, Trustee, The Ranbaxy Research Foundation, 19 Nehru Place, New Delhi-110019. The last-date for receipt of nominations is 31 July, 1990.

Govt. to Curb Commercialisation of Education

The Union Minister of State for Education, Prof. M.G.K. Menon, is reported to have informed the Lok Sabha that the Government was in the process of devising of fee structure whereby those who could not afford to pay for education would get it free, while those who had the capacity to pay for it, would pay.

Prof. Menon, who was replying to a discussion on the commercialisation of education, admitted that the gravest problem areas before the Government in this respect were technical and medical education, teacher training colleges, and to some extent, schools.

If commercialisation could be stopped here, the system would be cleaned, he maintained. The situation as regards technical education, was particularly serious, he admitted, and a "Source of worry".

News from Agril. Varsities

PAU Buildings Dedicated

Dr. Khem Singh Gill, Vice-Chancellor of the Punjab Agricultural University, recently dedicated the Assembly Hall of the College of Agricultural Engineering to Dr. C.M. Jacob, the founder Dean of the College of Agricultural Engineering and the School of Energy Studies building to Dr. B.S. Pathak a former Dean of the College and the first Director of the School of Energy Studies for Agriculture, These buildings have been named as 'Dr. C.M. Jacob Hall' and 'Pathak Energy Laboratories', respectively.

Speaking on the occasion, Dr. Gill said that mechanisation had played a vital role in the green revolution. He applauded the role of agricultural engineers of the University for developing time-and-labour saving farm implements. Dr. Gill further said that Punjab farmers had invested more than Rs. 3500 crore on farm machinery and, therefore, it was necessary to educate them about proper operation and care of their tractors, implements and irrigation machinery.

Dr. Gill remarked that this University was established on sound footing by Dr. P.N. Thapar, the first Vice-Chancellor of the University who picked up the finest faculty from all-over the country. This diversity had been a major factor responsible for the height of excellence which this University had achieved so far. Dr. Gill highly appreciated the services of Dr. C.M. Jacob and Dr. D.S. Pathak for their outstanding contribution in the field of agricultural engineering and energy studies for agriculture.

Summer Institutes in Agricultural Sciences

The Indian Council of Agricultural Research (ICAR) has decided to hold 27 Summer Institutes/Short Course in the field of Agricultural Sciences during the ensuing summer vacation of 1990 for the benefit of teachers, research workers and extension workers, particularly the subject matter specialists. The main objective of this inservice training course would be to communicate the latest technological advances in the subject and provide the necessary orientation to teachers and research workers of agriculture/agricultural engineering/ Animal Science/Fisheries so that they are able to relate the teaching of their subject to the problem in their respective disciplines.

The University/College/Institute/ Department may sponsor one or two teachers, researchers and extension specialists who are actively engaged in teaching/research or extension education in the respective subjects. The sponsored candidates should not be over 45 years of age on 1st July, 1990. Further details may be obtained from the Principal Scientist (S.I.), Indian Council of Agricultural Research, Krishi Anusandhan Bhavan, Pusa, New Delhi-110012.

Improving PG Teaching & Research

Dr. A.L. Chaudhry, Vice-Chancellor, Haryana Agricultural University recently convened a meeting of the Postgraduate Faculty members of the University to discuss possible improvement in teaching research and extension activities of the University. Speaking on the occasion Dr Chaudhry said that the process of admission, evaluation, integration, and research should be re-examined keeping in view the recent changes in the educational system as well as our traditional requirements. He suggested the revival of the postgraduate committee so that it could examine the problems relating to improvement in the postgraduate programmes. To make the curriculum dynamic and need based, he emphasised to make the curriculum future oriented. Keeping in view the constraints of resources, Dr. Chaudhry felt that the Postgraduate faculty should work on generating resources. Instead of initiating new projects for the new Ph.D. students, Dr. Chaudhry asked the Postgraduate faculty to bridge the deficiencies in existing projects.

Japanese Assistance for Pantnagar University

A Rs, 10 crore Japanese grants-in-aid on Seed Development is proposed to be made to the Pantnagar Agriculture University which heralded the first green revolution in the country by evolving high yielding crop varieties and large scale multiplication of quality seeds for distribution among farmers. To assess the project proposal a five member Japanese team headed by Dr. Michio Nozaki recently visited the University and held detailed discussions with the Vice-Chancellor, Dr. Mahatim Singh and other research scientists and officers working on seed production and development.

The Vice-Chancellor with his deep understanding of the research capacity of Japan suggested that the latest Japanese techniques and scientific literature on the subject be made available to the University well in advance. He also emphasized that the project must also cover other important components like farm implements, post-harvest technology and food-processing, etc. as these were equally vital to the growth of farm sector.

Indo-Soviet Research Project on Animal Health Protection

A 2-member Soviet team consisting of Prof. V. Zabolotskii and Prof M.A. Luchko from All Union of Experimental Veterinary Medicine, Moscow recently concluded its 5-day visit to Haryana Agricultural University (HAU). The team visited the University under Indo-USSR protocol on agriculture to develop joint research project on prevention and control of animal diseases. The members of the team were taken round the different departments of the College of Veterinary Sciences and held discussions with the senior scientists on different ongoing research projects.

The member of the team were much impressed by the excellent research work being done at the College of Veterinary Sciences and expressed the hope that under Indo USSR collaboration protocol, three research projects, namely, Brucellosis, Colibacillosis and Mycotoxicosis were likely to be started at the College of Veterinary Sciences.

The visiting team also held discussions with the Vice-Chancellor, Dr. A.L. Chaudhry. Dr. M A. Luchko described this visit as very fruitful and expressed his desire to have collaborative expertise in animal health protection. Explaining the development made in the field of veterinary and animal science research, Dr. Chaudhry said that in view of the similarities between both the countries and similarities relating to livestock diseases, scientist to scientist collaboration could further enrich the research programme of both countries.

Chinese Delegation at HAU

A 5-member Chinese delegation under Indo-Chinese Protocol on Science and Technology recently visited Haryana Agricultural University (HAU) to study the livestock development programme at the university. The members of the visiting team were taken round the departments of Animal Breeding, Animal Production Technology, Animal Nutrition, A.P.P. and Animal Products Technology and were explained the work being done there, by the scientists of the College of Livestock Sciences. They were also taken to the Veterinary Clinics and shown large herds of dairy cattle, sheep, goat and poultry.

In a meeting with the Vice-Chancellor, Dr. A.L. Chaudhry, the members of the visiting team lauded the research and extension work of the university and expressed the hope that keeping in view the similarities between India and China, the Animal Husbandry programme could be further strengthened by mutual exchange programmes. Explaining the administrative set up as well as extension and research work of the university to the visitors, Dr. Chaudhry said that keeping in view the emphasis on livestock production at the national level, efforts were being made at the university for the development of poultry animals so that apart from milk as well as animal products demand of the ever increasing population could be met.

News from UGC

INSAT-1B Programme of UGC

Between 16th May to 23rd May, 1990 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 Noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

1st Transmission

6.00 a.m. to 7.00 a.m.

16.5.90

"Basic Principles of I.C. Engines"
"Forts of Deccan—Bidar"
"Dispersal of Seeds and Fruits"

17.5.90

"Graphics with Microcomputers—V : Concepts of Animation"
"Ethnographic Film—Different Perspectives"
"Literature and Society"

18.5.90

"Construction of 17-Gon"
"Your Attention Please"
"The Caspian People and Oil"

19.5.90

"Spectators in a Peasant Land—II"
"Folk Dances of India"
"Purple-Sand Earthenware"

20.5.90

No Telecast

21.5.90

"Spectroscopy"
"Management Functions and Behaviour—Decision Making Styles"
"The Figh Against Hunger—Man Made Protein—I"

22.5.90

"Radioactivity—I Radioisotopes"
"Learning Through Games"
"Bulging Eyes"

23.5.90

"New Technologies in Printing"
"Pages From the History : The Egyptian Mummy"
"Organisation and Expression of Genes—II : DNA Supercooling & Gene Expression"

2nd Transmission

12.00 Noon to 1.00 p.m.

16.5.90

"Measurement of Strain"
"Images of Women in History—II"
"Genetics : Bridge of Heredity"

17.5.90

"Computers in Office Automation"
"Rites of Passage"
"Appreciation of Literary Forms—III"

"Lyric Poetry—The Ode"

18.5.90

"A Talk on Infrared Astronomy"
"Defence Mechanism—VIII"
"Water and Water Pollution"

19.5.90

"Portraits of a City—I"
"Career Guidance—Print Journalisms—I"
"Zibo Ceramic Ware"

20.5.90

No Telecast

21.5.90

"A Voyage in to Matter"
"Management Functions and Behaviour—Selection for Employment"
"Harvesting the Sae"

22.5.90

"Chemical Kinetics—I"
"Rhythm Puppet Making"
"The Human Brain—I"

23.5.90

"Basics of Reinforced Concrete"
"Images of Women in History —III"
"The Crawling Creatures"

UP Vishwa Vidyapith Not Recognised

The University Grants Commission (UGC) has advised the public not to pursue academic studies with Uttar Pradesh Vishwa Vidyapith, Kosikalan (Mathura), U.P. for the degree of Shiksha Bhimaka (B. Ed.). This self-styled Vishwa Vidyapith is not recognised by the UGC because it is neither a University established under a Central or State Act, nor has it been declared as a deemed to be university under Section 3 of the UGC Act 1956. It is, therefore, not empowered to award degrees in terms of the provisions contained under Section 22 of the UGC Act.

INDIAN SCIENCE CONGRESS ASSOCIATION

Announcement for Awards for 1990

Professor Hira Lal Chakravarty Awards : Applications in prescribed forms are invited from Indian Scientists, below 40 years of age on December 31, 1989, with Ph.D. degree having significant publications in any branch of Botany—pure or applied. There are two Awards; each carries a cash amount of Rs. 4,000/- and a certificate. Last date of submitting application is **July 15, 1990.**

Pran Vohra Award : Applications in prescribed forms are invited from scientists below 35 years of age on December 31, 1989, with Ph D. degree in Agricultural Sciences from any University or Institution in India, having made significant research contribution in any branch of Agricultural Sciences. Only research done in India will be considered for the award. The award carries a cash amount of Rs. 4,000/- and a certificate and the awardee will be required to deliver a lecture on the topic of his/her excellence during Annual Session of the Indian Science Congress Association in the Section of Agricultural Sciences. Last date of submitting application is **July 31, 1990.**

For prescribed application forms and necessary information, please write to the Indian Science Congress Association, 14, Dr. Biresh Guha Street, Calcutta-700017.

Communication :

Training Followers Not Leaders

Sir,

One or two views including an incidence of the past projected themselves on my mental screen when I read through Professor Amrik Singh's article 'Higher Education in AD 2000' (*University News*, 2 April '90) and I thought a mention about them could be made here.

Admiring the younger generation (age group 6-7) of its native wit, its abundant knowledge and information, and intelligence, I told my teacher, when I too was relatively young, and then, teaching, that the younger generation was full of life and spirit, and on the whole were more knowledgeable than my generation. Admitting the fact, he added, that children of each generation are bright and sunny but it is the process of education and those actively or passively involved (like teachers, parents) in the process in India are the responsible ones (or is it irresponsible ones ?) to kill the initiative and the spirit of inquiry in children He cited as an example, in contrast, a small conversation (but one of great significance) between an American father and his young son (the boy was Richard Feynman, later a nobel laureate in Physics). They were walking along and the young boy wanted to know the name of a bird flying over them. The father replied to him by saying in sum and substance that the name was not that important ("we may call it by one name and the Chinese by another") but how does it fly, what does it thrive upon, its metabolism, at what stage of evolution it entered etc. are more important (No wonder that the boy turned out to be a great scientist in later years). My teacher after narrating the incident generalised by saying that as a rule we parents (and teachers) neither know the answers to many such questions (It is not a crime, one cannot expect to be a 'be all and end all' of knowledge) nor the methods 'to guide' the enquiring mind (that is a serious matter). I have a strong feeling that what my teacher said then is still valid in our contemporary society. We seem to enjoy even today by stifling the young minds of their creative ability, original thinking etc. while continuing to be ignorant as to how to prepare the young minds to nurture and grow into one of strength. We in India, as an NRI puts it, are trained to be good followers but not trained to be leaders. He said this pointedly looking at our educational system of which he was also a dour participant. It is true that in today's scenario too, the students continue to sit in a class, as if they are dead specimens of a museum, and (if fortunate) teachers deliver lectures as if their spoken words would enter the audience brain and will get lodged themselves there (at least till examinations are over). Mind it, this is taking place in an atmosphere lacking in inter-action and empathy. That means it is nothing but a sure method to prepare followers and not leaders. We have to change the fashion and start cultivating a system of our own to develop academic leaders. The question is, whether we can atleast 'guide' the inquisitive minds, if not answer all their challenges, without silencing them with our authority ?

Turning to the work-world, let us see what happens. If some one were to ask somebody else (applicable to super and sub-ordinates) as to why he did such and such a thing or as to why he had taken such and such an action. I am sure, you can imagine the scene to follow and I need not describe it. The emotive forces will erupt than arguments filled with rationality. One would conceive the situation as of questioning ones authority rather a question put up as a process of learning for the future. Instead of promotion of good understanding between the two souls who are interdependent on the work-world only fissures develop leading to two or more factions. I am sure what I said above is generally true be it an institution imparting science (natural, engineering, medical...), social science (humanities, arts..), or management science. The question is whether we can learn to look dispassionately and objectively at a problem and find a solution while explaining the rationality behind the decision to the satisfaction of many, if not all ?

We all accept that the destiny of India is no longer being made within the four walls of the classroom with the advent of open systems of learning. Good that the physical barriers have been removed but note that the barriers of curriculum and syllabus continue to exist. A candidate registered with an open university has to go through the mill of lessons prescribed and appear at the examination. He has no liberty of open learning and is required to confine to the syllabus than not. What I mean is that there is no institution which is prepared to hold an examination to a candidate who proclaims he has acquired sufficient knowledge through his own efforts and skills to a level required (say) for a graduate degree. Let me illustrate—if a candidate claims that he has been reading political science and has sufficient knowledge about it, he cannot just take an examination unless he had registered earlier and that discipline had formed a subject of study prescribed by the university/the school. At the extreme end, one can see conferment of degree of honoris—causa, untiringly by one university after another, on an individual who is already well accomplished, and had won many laurels before. I do not think we have a system of admitting a candidate to a degree of a university by examination, if the candidate shows up with knowledge sufficient to do so in his own choicest field. Maybe we had some schools in the post-vedic period but not now. Whether we can devise specialised institutions to admit qualified candidate by examination to a degree/diploma from real open world learning is the question (not to Fellowships or Memberships of academies).

Yours etc.
V. Narasimhan
Registrar,
Sree Chitra Tirunal Institute for
Medical Sciences & Technology,
Trivandrum.

UNIVERSITY OF ROORKEE

ADMISSION TO POST-GRADUATE PROGRAMMES 1990-91

1. Master's Degree Programmes (M.E./M. Tech./M. Arch./M. URP) of 1-1/2 year (3 Semesters) Duration

- **(a) Department of Architecture and Planning**
  - * Architecture * † Urban and Rural Planning * Building Science and Technology (offered by C.E. Department)
- **(b) Department of Chemical Engineering**
  - * Advanced Transfer Processes * Computer Aided Process Plant Design * Industrial Pollution Abatement
- **(c) Department of Civil Engineering**
  - * Building Science and Technology * Computer Aided Design * Environmental Engg. * Geotechnical Engg. * Hydraulic Engg. * **Remote Sensing & Photogrammetric. Engg. * Structural Engg. * Transportation Engg.
- **(d) Department of Earthquake Engineering**
  - * Soil Dynamics * Structural Dynamics
- **(e) Department of Electrical Engineering**
  - * Measurement and Instrumentation * Power Apparatus and Electric Drives * Power System Engineering * System Engineering and Operations Research.
- **(f) Department of Electronics & Computer Engineering**
  - * Communication System * Control and Guidance * Microwave and Radar * Solid State Electronics * // Computer Science and Technology * T.V. Technology (extension programme of PG Dip.)
- **(g) Department of Mechanical & Industrial Engineering**
  - * Machine Design Engg. * Production & Industrial System Engg. * Thermal Engg. * Welding Engg.
- **(h) Department of Metallurgical Engineering**
  - * Extractive Metallurgy * Industrial Metallurgy * Physical Metallurgy
- **(i) Department of Physics**
  - +Atmospheric Sciences
- **(j) I.P.T., Saharanpur**
  - * Pulp and Paper

ELIGIBILITY FOR ADMISSION

* Bachelor's degree in the appropriate field of Engineering/Technology/Architecture

† Alternately Master's degree in Geography

+M.Sc. (Physics/Atmos. Physics/Meteorology/Maths/Chemistry/Earth Science). B.E.

**Alternate qualifications for trained officers available.

// M.Sc. (Phy./Maths.)

2. Post-Graduate Diploma Programmes of 1 Year (2 Semesters) Duration

- **(a) Department of Earthquake Engineering**
  - * Earthquake Engg. * Earthquake Technology (only for sponsored candidates)
- **(b) Department of Electronics & Computer Engineering**
  - * Television Technology
- **(c) Department of Humanities & Social Sciences**
  - * * Industrial Management

ELIGIBILITY FOR ADMISSION

* Bachelor's degree in Engineering or Master's degree in Science in appropriate disciplines.

** Alternately Master's degree in Economics/Psychology/Commerce with Mathematics at Bachelor's degree level.

3. M.Phil. Programmes of 1 Year (2 Semesters) Duration

- **(a) Department of Chemistry**
  - ◈ Industrial Methods of Chemical Analysis
- **(b) Department of Mathematics**
  - ◈ Computer Applications ◈ Mathematics
- **(c) Department of Physics**
  - ◈ Instrumentation ◈ Material Science

ELIGIBILITY FOR ADMISSION

◈ Master's degree in science in appropriate disciplines/B.E.

4. M. Tech. Programmes of 3 Years (6 Semesters) Duration

Department of Earth-Science

☐Applied Geology☐Applied Geophysics

ELIGIBILITY FOR ADMISSION

☐Bachelor's degree in Science in appropriate disciplines,

5. Master of Science Programmes of 2 Years (4 Semesters) Duration

☐Applied Geology☐Applied Mathematics ‡ Bio-Sciences ☐ Chemistry ☐ Physics

ELIGIBILITY FOR ADMISSION

☐Bachelor's degree in Science in appropriate disciplines.

‡ Alternately Bachelor's degree in Agriculture/Pharmacy/Veterinary Science and Animal Husbandry.

Information Bulletin containing Application form can be obtained from the office of the Assistant Registrar (Academic), University of Roorkee, Roorkee-247667 on payment of Rs. 30/- (Rupees Thirty only) by Bank Draft/University receipt payable to Registrar, University of Roorkee, Roorkee, in person or by sending a self-addressed 22 x 30 cms. envelope with postage stamps of Rs. 2/- affixed to it. Please indicate the name of the course and department in which admission is desired while sending the request for information Bulletin and application form. Two separate Bulletins are available. Bulletin A for M E./M. Tech./M. Arch./M. Phil./P.G. Dip. where admission requirement is B.E./B.Arch./M.Sc./M.A. and the Bulletin B for M.Sc./M.Tech , where admission requirement is B.Sc., (Three years programme). Separate application form should be filled for courses belonging to different departments. Candidates who have appeared in the final examination of qualifying degree may also apply. They will be considered provisionally ffi = dmission provided they submit a certificate of having completed all examination requirements of the qualifying examination. 20% seats are reserved for SC/ST candidates Please specify the Bulletin quired A or B. Last date for receipt of completed Application Form in concerned department is **June 9, 1990.**

Roorkee March 27, 1990.

C.P. Sinha
REGISTRAR

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities.

PHYSICAL SCIENCES

Mathematics

1. Mishra, Tarun Kumar. *Some recent advances in applicable analysis* BHU. Prof S.N. Lal, Department of Mathematics, Banaras Hindu University, Varanasi and Dr. R N. Mukherjee, Department of Applied Mathematics, Institute of Technology, Banaras Hindu University, Varanasi.

2. Pandey, Lakshmi Kant. *On differentiable structures.* BHU. Dr. R M. Ojha, Department of Mathematics, Banaras Hindu University, Varanasi.

3. Saha, Suparna *Special functions.* BHU. Dr. I.K. Khanna, Department of Mathematics, Banaras Hindu University, Varanasi.

Statistics

1. Anil Kumar. *Models related to human fertility.* BHU. Dr. K K. Singh, Department of Statistics, Banaras Hindu University, Varanasi.

2. Graham, Dasari Samuel Billy. *On power of some time pool test procedure for a mixed model with nested classification.* Vikram Dr. J.K. Tailor, Reader, School of Studies in Statistics, Vikram University, Ujjain.

3. Jose, K.K. *A study on spectral methods and principal components in time series analysis.* Kerala Dr R.N. Pillai, Prof. and Head, Department of Statistics, University of Kerala, Kariavattom.

4. Mishra, Birendra Kumar. *Some inferences regarding the estimation of population parameter.* BHU. Dr. B.B. Khare, Department of Statistics, Banaras Hindu University, Varanasi.

5. Mishra, Jai Prakash. *Statistical inferences in multivariate data.* BHU. Dr. (Mrs.) Manju Pandey, Department of Statistics, Banaras Hindu University, Varanasi.

6. Singh, Jitendra Pratap. *Inferences for life-time distributions.* BHU. Dr. Umesh Singh, Department of Statistics, Banaras Hindu University, Varanasi.

7. Srivastava, Rajesh Kumar. *Some problems of estimation in successive sampling over two occasions in sample surveys.* BHU. Dr. B B. Khare, Department of Statistics, Banaras Hindu University, Varanasi.

8. Tiwari, Gayatri. *A contribution of inference based on conditional specification.* Vikram. Dr K.P. Saxena, Prof., School of Studies in Statistics, Vikram University, Ujjain.

9. Tiwari, Manoj Kumar. *Shrinkage estimation towards an interval.* BHU. Dr. B N. Pandey, Department of Statistics, Banaras Hindu University, Varanasi.

10. Umesh Singh. *Problems of estimation and testing of hypothesis in normal and exponential distribution.* BHU. Dr. R.D. Singh, Department of Statistics, Banaras Hindu University, Varanasi.

Physics

1. Bhardwaj, Ashok. *Study of excitations of electrostatic and electromagnetic waves in space plasma.* BHU. Dr. S.P. Mishra, Department of Applied Physics, Institute of Technology, Banaras Hindu University, Varanasi.

2. Narendra Kumar. *Some studies on electromagnetic propogation, optical fibre physics and integrated optics.* BHU. Prof. O.N. Singh, and Dr. S.P. Ojha, Department of Applied Physics, Institute of Technology, Banaras Hindu University, Varanasi.

3. Niranjan, Vijay. *Orientational disorder in crystals.* Delhi. Dr. Sudhir Kumar Trikha, Department of Physics, University of Delhi, Delhi.

4. Pandey, Kamala Kant. *Some studies on excitation of plasma wave emissions in space plasma.* BHU. Dr. S.P.

Mishra, Reader, Department of Applied Physics, Institute of Technology, Banaras Hindu University, Varanasi.

5. Singh, Dinesh Kumar. *Electromagnetic communication and E.M. Wave propagation in confined and semiconfined regions.* BHU. Prof. O.N. Singh, and Dr. P. Khestgir, Department of Applied Physics, Institute of Technology, Banaras Hindu University, Varanasi.

6. Singh, Rajendra Prasad. *Theoretical studies on the performance of MESFET and MODFET.* BHU. Dr. D.P. Singh, Department of Physics, Banaras Hindu University, Varanasi.

7. Tandon, Sanjay. *Electronic material.* Delhi. Prof. Abhai Man Singh, Department of Physics, University of Delhi, Delhi.

Chemistry

1. Lukose, George. *Synthesis and conversion of some natural products.* Kerala. Dr. P.K. Rajan, Lecturer, Department of Chemistry, University of Kerala, Kariavattam.

2. Meena, C.V. *Some titrimetric applications of N-halo compounds.* Kerala. Dr. P. Indrasenan, Reader, Department of Chemistry, University of Kerala, Kariavattom.

3 Nisha, V. *Studies on some mixed ligand complexes of thorium* (*iv*) *and dioxouranium* (*vi*). Kerala. Dr. P. Indrasenan, Reader, Department of Chemistry, University of Kerala, Kariavattom.

4. Rajan, Mini N. *Kinetics of solvolysis of same alkyl phenyl carbinyl chlorides.* Kerala. Dr. K. Saramma, Prof., Department of Chemistry, University of Kerala, Kariavattom.

5. Sreeja, M.S. *Redox titrations in aqueous acetic acid using certain N-bromo compounds.* Kerala. Dr. P. Indrasenan, Reader, Department of Chemistry, University of Kerala, Kariavattom.

Earth Sciences

1. Joseph, Benno. *Petrography, chemistry and evolution of soils from two contrasting environments.* Kerala. Dr. K.P. Thrivikramji, Reader, Department of Geology, University of Kerala., Kariavattom.

Engineering & Technology

1. Arif-Al-Fitlani, Arif Ahmad. *Radiation and scanning characteristics of microstrip antenna.* BHU. Dr. B.R. Vishvakarma, Department of Electronic Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

2. Chanana, Ravi Kumar. *Plasma processing for VLSI technology.* BHU. Prof. S.K. Srivastava, Department of Electronic Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

3. Gupta, Charu Chandra. *Special alternators for high frequency operation with applications in aeronics.* BHU. Shri Akhilesh Rai, Addl. General Manager, Hindustan Aeronautics Limited, Lucknow Division, Lucknow and Prof. M. Bhattacharya, Department of Electronic Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

4. Haribabu, Eluri. *Waste water treatment through adsorption.* BHU. Prof. Y.F. Upadhya, and Prof. S N. Upadhyaya, Department of Chemical Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

5. Mehta, Pradeep Kumar, *Non-linear analysis of cable stayed bridge.* BHU. Prof. T.P. Agrawal and Shri P.K. Singh, Department of Civil Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

6. Murali Mohan, Ch. *Electron beam-wave electron.* BHU. Prof. D.S. Venkateswarlu, Department of Electronic Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

7. Nair, Achuth Sanker S. *An artificial intelligence package using symbolic processing.* Kerala. Dr. K.P.P. Pillai, Additional Director, and Dr. R P. Rajagopalan Nair, Structural and Software Consultant, L.B.S. Centre for Science and Technology, Trivandrum.

8. Pathak, Surya Kumar. *Electromagnetic field in biological medium.* BHU. Dr, S P Singh, Department of Electronic Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

9. Singh, Jainendra Kumar. *Oxidation behaviour of freshly reduced iron ore.* BHU. Prof. R.C. Gupta, Department of Metallurgical Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

10. Srinadh, K. Venkata Sai. *Flow, fracture and hot workability of metals and metal-matrix composites.* BHU. Prof, V.V. Kutumba, Department of Metallurgical Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

BIOLOGICAL SCIENCES

Microbiology

1. Samuel Raj, A. *Application of biotechnology in parasitic diseases.* BHU. Dr. T.M. Mohapatra, Department of Microbiology, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

2. Tiwari, Ram Mohan. *Immunodiagnosis of filariasis.* BHU. Prof. P C. Sen, Department of Microbiology, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

3. Venkatadri, Kolla. *Bacteriophage MB 78 and its interaction with the host : A molecular approach.* BHU. Prof. (Mrs.) M. Chakravorty, Department of Molecular Biology, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

Biochemistry

1. Mohussali, Mohammed Rasool Farsdoon. *Biochemistry of filariasis.* BHU. Dr. S. Rathor, Department of Biochemistry, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

2. Pakmehr, Ali Mohammad. *Immunological studies of filaria.* BHU. Dr. S. Rathor, Department of Biochemistry, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

Botany

1. Bhalla, Suman. *Ecological studies of medicinal plants in forests of Sagar Disttict.* HS Gour. Dr. S P. Vajpai, Reader, Department of Botany, Dr. Harisingh Gour Vishwavidyalaya, Sagar and Dr. N.P. Bhalla, Lecturer, Department of Botany, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2, Bhatia, Bela. *Histochemical and ultrastructural studies on some members of rhodophyceae.* Delhi. Dr. M.R. Vijayaraghavan, Department of Botany, University of Delhi, Delhi.

3. Gupta, Sandhya. *Tissue culture study on some economic plants.* Delhi. Dr. C.B. Sehgal, Department of Botany, University of Delhi, Delhi.

4. Roshi, Farah Najam. *Propagation of bamboos.* Delhi. Dr. I. Usha Rao, and Dr. I.V. Ramanuja Rao, Department of Botany, University of Delhi, Delhi.

5. Sakhara, Raghunath Kashinath. *Anatomical, biochemical and physiological studies in Melia azedarah Linn. and Tephrosia purpurea Pers, infected with MLOs.* Shivaji. Dr. B.A. Karadge, Department of Botany, Shivaji University, Kolhapur.

Zoology

1. Bhalla, Shashi. *Studies on pulse-beetle. Callosobruchos species* (*Coleoptera : Bruchidae*) *in relation to Vigna species.* Delhi. Dr. H.C. Aggarwal, Department of Zoology, University of Delhi, Delhi and Dr. R.S. Rana, Indian Agricultural Research Institute, New Delhi.

2. Mishra, Suresh. *Role of nutrition in hormonal regulation of reproduction in rat.* Delhi. Dr. P.K. Paul, Department of Zoology, University of Delhi, Delhi.

3. Sharma, Rekha. *Limnological studies on Yeshwant Sagar reservior with reference to plankton population bionomics.* Devi Ahilya. Dr. A.P. Diwan, Prof., Department of Zoology, Govt. College, Mhow.

4. Sudha Kumari, C.C. *Endocrinology of reproduction in bird in relation with adrenal and pineal gland.* BHU. Dr C. Halder, Department of Zoology, Banaras Hindu University, Varanasi.

Medical Sciences

1. Chakravorty, S.K. *Concept of krimi in ayurveda with special reference to vidanga in cases of Ascarlosis lumbricoids (Round worm infestation).* BHU. Dr D Ojha, Department of Kayachikitsa, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

2. Dey, Sangita. *Involvement of biogenic amines in stress.* BHU. Prof. R.H. Singh, Department of Kayachikitsa, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

3. Dubey, Dhankumari Amarendra Kumar. *Response of poorv-karma in cancer management.* BHU. Prof. G.C. Prasad, Department of Shalya Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi,

4. Jain, Girish Kumar. *Development of transdermal drug delivery system for vasoactive drugs.* Delhi. Sr. S.S. Agarwal, College of Pharmacy, New Delhi and Dr. J.L. Kaul, College of Pharmacy, Pusp Vihar, New Delhi.

5. Prasad, Bineeta. *Evaluation of use effectivity of existing health education materials in a primary health centre.* BHU. Prof V.M Gupta, Department of Preventive and Social Medicine, Institute of Medical Sciences, Banars Hindu University, Varanasi.

6. Rai, Anil Kumar. *Susrut sanhita ka sarvangin adhyayan.* BHU Dr. K.R. Sharma, Department of Shalya Shalakya, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

7. Ramji. *Viral hepatitis.* BHU. Prof. S N. Tripathi, Department of Kayachikitsa, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

8. Sachdev, Kamal. *Pancha karma.* BHU. Prof. S.N. Tripathi, Department of Kayachikitsa, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

9. Sen, Somnath. *Elisa study in filariasis.* BHU. Prof. S D. Gaur, Department of Preventive and Social Medicine, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Satya Srinivas, Mantriparagada Ananta. *Contributions to certain nonlinear biomathematicals models.* Andhra.

1. Taysir Mustafa Jaber Nour. *Contributions to the theory of bitopological spaces.* Delhi.

Physics

1. Avadhani, Sonti Satya Surya Subrahmanya Venkata. *Thin films of pure and doped organic polymers : Preparation and ellipsometric characterisation.* Andhra.

2. Balkrishnan. Janaki. *Stochastic quantization of parafermi fields and axial anomalies.* Delhi.

3. Balasubramanyan, D.R. *Nuclear magnetic resonance investigations of certain protonic conductors.* IISc.

4. Dan, Jitendranath. *Crystal structure determination by X-ray diffraction method.* Burdwan. Prof. Suchit Ch. Chakraborty, Department of Physics, University of Burdwan, Burdwan.

5. Datta, Santanu. *Coalesence model analysis of complex particle spectra from energetic heavy ion collision.* Calcutta.

6. De, Samita. *X-ray diffraction and thermally stimulated current studies on carnauba wax thermoelectrets.* Calcutta.

7. Dwarkanath, K S. *A synthesis study of the radio sky at decametre wave lengths.* IISc.

8. Karbelkar S.N. *Statistical methods of phase reconstruction in speckle interferometry.* IISc.

9. Namboodiri. P.M. Shankaranarayanan. *Studies in interaction galaxies.* Bangalore. Dr. B C. Chandrasekhara, Department of Physics, Bangalore University, Bangalore and Dr. R.K. Kochhar, Indian Institute of Astrophysics, Bangalore.

10. Raghuwanshi, Fullusinha Chandan Sinha. *Study of $Li_2 SO^4$-$LiOH$ system from solid electrolyte point of view.* Nagpur. Dr. (Mrs) Kamal Singh, Department of Physics, Nagpur University, Nagpur.

11. Ramprasad, M.P. *Studies on a ribosome inactivating protein : Mechanism of inhibition of protein synthesis by gelonin.* IISc.

12. Saxena, Subhash Kumar. *Studies on the role of activators in the mechanoluminescence of zinc sulphide phosphors.* Durgawati. Dr. B.P. Chandra, Prof., Department of Physics, Rani Durgawati Vishwavidyalaya, Jabalpur.

13. Sureshkumar, M.B. *Study of the spectra of some diatomic molecules (NiCl and CoCl).* Baroda.

Chemistry

1. Avudaithai, M. *Sacrificial water photolysis on TiO_2 and $SrTiO_3$ fine powders under band gap irradiation.* IISc.

2, Badeas, Arvind Chunilal. *Studies on polymers.* Baroda.

3. Bhake, Avinesh Bhaskarrao *Physico-chemical studies of some macrocyclic compounds.* Nagpur. Dr. N.S. Bhave, Lecturer, Department of Chemistry, Nagpur University, Nagpur.

4. Chattopadhayay, Pratap. *Some natural heterocycles and homocycles.* Calcutta.

5. Das, Jagannath. *Studies on the synthesis of amorphous silica-alumina and crystalline aluminosilicate, their characterisation and application in the conversion of alcohol to hydrocarbons and in the synthesis of pyridine bases.* ISM. Dr, D. Guha, Indian School of Mines, Dhanbad and Dr. S.K. Roy, Central Fuel Research Institute, Dhanbad.

6. Das, Jitesh Chandra. *Correlations of certain physicochemical properties of some ternavy liquid mixtures with selected parameters of corresponding pure components.* NBU.

7. Dhar. Purnendu. *Studies on the metal complexes of some sulopomides derived from amino acids.* Calcutta.

8. Ganguli, A K *High temperature super-conductivity in thallium cuprates and related systems.* IISc.

9. Guharay, Arati. *Synthesis and characterisation of transition metal complexes with pyrazole-derived ligands.* Calcutta.

10. Gupta, Jhinuk Das. *Investigation on some 2 alkylamido 6-chlorol/nitro-4 H-1, 3, 2-banzodiexaphosphorin-2-sulphides having pesticidal activities.* NBU.

11. Janaki. S. *Synthetic studies in terpenoids.* IISc

12. Jayakumari, V.G. *Immobilization of enzymes on polymeric supports and their use in peptide synthsis.* Calicut. Dr. V.N. Rajasekharan Pillai, Department of Chemistry, Mahatma Gandhi University, Kottayam.

13. Kandaswamy, P. *Studies in electrode processes.* Venkateswara. Prof. S. Jayarama Reddy, Department of Chemistry, Sri Venkateswara University College of Engineering, Tirupati.

14. Paliwal, Poonam. *Synthetic studies in naturally occurring 3-benzyl-4-chromones and angolensins and ethoxymethylation of 2-hydroxy-and 2-methoxv-benzyl phenyl katones.* Delhi.

15, Patel, Kanuprasad Dahyalal. *Ion exchange resines.* Patel. Dr. Mohanbhai M. Patel, Prof., Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar.

16. Penta Babu, Duvvury. *Studies in electrode processes : Mechanistic and synthetic aspects.* Venkateswara. Prof. S. Jayaram Reddy, Department of Chemistry, Sri Vankateswara University College of Engineering, Tirupati.

17. Rekha, G K. *Spectrophotometric study of the reactions of phenothizines with transition metal ions.* Bangalore. Prof. H. Sanke Gowda, H. Shankara Nilaya, 43, 3rd Cross, 4th Block, Kumara Park West, Bangalore.

18. Saha, Anima. *Chemistry of oxo ion complexes of molybdenum.* Calcutta.

19. Salahuddin Kunju, A. *Studies on the absorption of solutes on solids—Extension of Horkins-Jura theory.* Kerala. Dr. K.P. Dharmaraja Iyer, Prof. and Head, Department of Chemistry, University College, Trivandrum.

20. Sanyal, Pradip Kumar. *Physico-chemical studies on the interaction of selected cationic dyes with aluminosilicates.* NBU.

21. Sharma, Ram Rattan. *Synthesis and characterization of some lanthanide and main transition metal complexes with nitrogen, oxvgen or sulphur donor ligands.* Delhi.

22. Sheth, Kamleshkumar Arvindbhai. *Synthesis of potential liquid-crystalline polymers and study of their physical properties.* Baroda.

23. Venkateswara Rao, Tsappati Nagaveera. *Studies on the impact of industrialization on the environment of Visakhapatnam.* Andhra.

Earth Sciences

1. Mansour Amini. *Lower cambrian phosphorites of Soltanieh and Central Alborz Ranges in Iran and their comparison with the Mussoorie phosphorites of lower Himalaya. India.* Delhi.

Engineering & Technology

1. Abdul Mobin. *Voice recognition studies based on the acoustic characteristics of speech signal using a microprocessor.* Delhi.

2, Basu, Subir Kumar. *Hydrodynamic and water quality models of the Hooghly estuary.* Calcutta

3· Bhattacharya, T K. *Optimum constant power compact pulse codes for rejection of Range-Doppler radar clutter.* IISc.

4. Chakravarty, P. *Analysis of two-dimensional downstream-mixing 16-Um CO_2 gasdynamic laser.* IISc.

5. Deshpande, Villas Pandurangji. *Studies on aneerobic fixed film moving had reactor for the treatment of domestic sewage.* Nagpur. Dr. S.N. Kaul, Scientist and Head, Waste Water Engineering, Department of National Environmental Engineering Research Institute, Nagpur and Dr. A.G. Bhole, Sr. Prof. Visveswaraya Regional College of Engineering, Nagpur.

6. Gadkari, Shamsunder Krishnarao, *Studies on fluidised bed system for the waste water treatment.* Nagpur. Dr. S.N. Kaul, Scientist and Head, Department of Waste Water Engineering, National Environmental Engineering Research Institute, Nagpur and Dr. A.G. Bhole, Prof., Department of Civil Engineering, Division of Environmental Engineering, Visveswaraya Regional College of Engineering, Nagpur.

7. Ghose, Debasish. *Multicriteria games with applications to two-target game problems.* IISc.

8. Goyal, Gajendra. *Development and application of an efficient implicit-explicit method for one-dimensional psemixed flames.* IISc.

9. Khan. M, Mustafa. *Effect of surface roughness on the prebreakdown and breakdown phenomena in SF_6 and its mixtures.* IISc.

10. Mukhopadhyay. N.K. *Some aspects of synthesis. structure and stability of quasicrystals.* IISc.

11. Nageswara Rao, Chalasani. *Some development in mechanism analysis and synthesis.* Ghasidas. Dr. A.C. Rao, Govt. Engineering College, Bilaspur, Madhya Pradesh and Dr. D.S. Bal, Govt. Engineering College, Bilaspur, Madhya Pradesh.

12. Phani Kumar, M.S. *Numerical study of laminar mixed convection from a horizontal. isothermal cylinder.* IISc.

13. Senthil Kumar, A. *Coherent and non coherent multiple imaging techniques.* IISc.

14. Venugopal, T. *Sensitivity studies on the structure of the monsoon desert heat low.* IISc.

UNIVERSITY OF HYDERABAD

(A Central University, established in 1974 by an Act of the Parliament)

EMPLOYMENT NOTIFICATION NO. RECTT/5/90

The University of Hyderabad invites applications in the prescribed form for the following Non-teaching posts.

Sl. No.	Post	Likely No. of Vacancies OC	SC	ST
1.	Senior Assistants	—	3	1
2.	Audio Visual Technician (S.N. School)	1	—	—
3.	Technical Assistant (History)	1	—	—
4.	Radiographer	1	—	—
5.	Specialist Coaches (Sports & Games)	1	1	—
6.	Stenographers	8	1	2
7.	Mess Supervisor	—	—	1
8.	Meter Reader	1	—	—
9.	Junior Lab Assistant (Linguistics Centre)	1	—	—
10.	Junior Office Assistants	15	—	—

Scales of Pay and Gross emoluments at the minimum of the Scales are as follows :

Sl. No.	Scale of Pay	Gross monthly emoluments at the minimum
1	Rs. 1400-40-1600-50-2300-EB-60-2600	Rs 2,227/-
2,3,4 & 5	Rs. 1400-40-1800-EB-50-2300	Rs. 2,227/-
6,7,	Rs. 1200-30-1560-EB-40-2040	Rs. 1,951/-
8 & 9	Rs. 975-25-1150-EB-30-1540	Rs. 1,641/-
10	Rs. 950-20-1150-EB-25-1500	Rs. 1,606/-

Reservation for SC & ST exists as per roster registers for various posts maintained by the University in accordance with the guidelines contained in GOI brochure on Reservation for SC/ST. SC/ST panels for filling reserved point for JOA posts are available. Hence, fresh applications for these posts under SC/ST category are not invited.

The prescribed application form and particulars of qualifications, experience etc., can be had either in person from the Recruitment Section in the Administration Building, University Campus in Gachibowli, Hyderabad-500 134 or by post, by sending a self-addressed envelope of the size 28 cm x 13 cm duly affixing postage stamps worth Rs. 3/- and superscribing on the top left corner of the envelope "REQUEST FOR APPLICATION FOR THE POST OF........." to the Assistant Registrar (Recruitment), University of Hyderabad, P.O. Central University, Hyderabad-500 134.

The last date for receipt of applications duly filled in is 31st May, 1990.

Hyderabad
19th April, 1990

P. Murali Krishna
REGISTRAR

ANNAMALAI UNIVERSITY

Phone : 04144—2249
Telex : 4602-201 ANUC-IN

NOTIFICATION

M.B.A. PROGRAMME—1990-'91

(Full-time)

Applications are invited for admission to M.B.A. (Semester) Programme (Full-time) for the year 1990-'91. Application forms and prospectus can be had from the REGISTRAR, ANNAMALAI UNIVERSITY, ANNAMALAINAGAR-608 002 on payment of Rs. 100/- in person or by sending a Demand Draft in favour of the REGISTRAR, ANNAMALAI UNIVERSITY payable on Indian Bank or Bank of Madura at ANNAMALAINAGAR or State Bank of India at CHIDAMBARAM alongwith a requisition and a self addressed envelope of size 30 cm x 13 cm stamped to the value of Rs. 1.80 The application form together with the prospectus will be issued from 02-05-1990.

ELIGIBILITY : A Graduate of a recognised University, having secured 55% in the B.A., B. Com., B.B.A. or 60% in the B.Sc., B.E., B.Sc. (Agri.), B. Pharm. or an equivalent degree or a pass in any Post-Graduate degree of a recognised University with 55% of marks.

Last date for the receipt of filled in applications by the University is 15-06-1990.

The University will not be responsible for any postal delay.

Dr. P. R. Karpagaganapathy
REGISTRAR

BANASTHALI VIDYAPITH

(Deemed to be University)

National Institution for Education of WOMEN REQUIRES for Faculty of Education :

Professor : 1 (M A , M Ed. Ph.D prefer-
Readers : 2 (ably in—Sociology/Philo-
(sophy/Psychology/English.

Areas of Specialization : Philosophical & Social Foundation of Education/ Measurement and Evaluation/Educational Psychology/Educational Technology.

Lecturer : 1 Home Science Teaching : I/High II M.Sc. Home Science and M Ed.

Qualifications : As recommended by the University Grants Commission.

Pay-Scale : Professor : 4500-150-5700-200-7300

Reader : 3700-125-4950-150-5700

Lecturer : 2200-75-2800-100-4000

Dearness Allowance, Contributory Provident Fund, Gratuity-cum-Insurance benefits as per Vidyapith rules.

WOMEN PREFERRED

Notes :

1. Teachers must become habitual wearer of KHADI on appointment.
2. Selection Committee may recommend higher start in exceptional cases on merit.
3. The Vidyapith reserves the right to increase or decrease the number of vacancies or not to fill-up any post advertised.
4. Vidyapith will contribute travel assistance upto IInd class one side shortest route fare for all candidates appearing at interview. However for the post of Professor one side shortest route 1st class fare will be paid.

Applications on prescribed forms must reach The Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith (Rajasthan) 304022 by 7th June, 1990. Forms can be obtained by sending self-addressed stamped envelope of 16x23 cm size with Rs. 3.00 stamps or Rs. 8.00 stamps for registered post and Postal Order of Rs. 5/- in favour of Secretary, Banasthali Vidyapith. However, for Professor's post Bio-data on plain paper may be sent to the Secretary in confidence. No. 3/90

DEPARTMENT OF COMPUTER SCIENCE
SOUTH GUJARAT UNIVERSITY
SURAT

Applications are invited for two posts of lecturers (1 open + 1 S.T.) in Computer Science in scale of Rs. 2200-75-2800-100 4000 with usual Allowances. Application forms and other details regarding the qualifications can be had on payment of Rs. 7/- in cash or by I.P.O. alongwith self-addressed envelope of 22 cm × 13 cm size with Postal Stamps worth Rs. 5/- affixed thereon.

The last date for receipt of application is 21-5-1990.

N.K. Desai
Offg. REGISTRAR

INDIRA KALA SANGIT VISHWAVIDYALAYA
KHAIRAGARH (M.P.)

No. Estt./90/7434

Dated : 20th April, 1990

NOTICE

The last date for receipt of prescribed application forms for the various Teaching Posts as per our advertisement No. Estt/90/7355 (1 to 15), dated the 20th March, 1990 has been extended upto 30th May, 1990. No blank prescribed application forms will be sent/supplied after 20th May, 1990.

M.K. Gangajaliwale
REGISTRAR

SARDAR PATEL UNIVERSITY
VALLABH VIDYANAGAR-388 120
Dist : Kaira (GUJARAT)
NOTIFICATION NO : EST/1/1990-91 :

Applications are invited in the prescribed forms which can be had from the University Office on payment of Rs. 20/- in each or by Indian Postal Order for the following posts so as to reach the undersigned on or before 25-5-1990.

Sr. No.	Name of the Post	No. of Posts	Reserved for SC/ST/ SEBC	No. of attempts made for reserved posts.
1	2	3	4	5
A.	Professor each in (Pay Scale Rs. 4500-7300)			
1.	Physics (X-Rays)	1	—	—
2.	U.S.I.C	1	—	—
3.	Electronics	1	—	—
4.	M.B.A.	3	—	—
5.	Sanskrit	1	—	—
6.	Commerce	1	—	—
B.	Reader each in (Pay Scale Rs. 3700-5700)			
1.	Chemistry (Co-ordination)	1	—	—
2.	Commerce	1	—	—
3.	M.B.A.	3	—	—
4.	Cell Biology	1	—	—
5.	M.Sc. Electronics	1	—	—
6.	Statistics	1	—	—
7.	Animal Science	1	—	—
C.	Principal, M.B. Patel College of Education (Pay Scale Rs. 3700-5700)	1	—	—
D.	Lecturer each in (Pay Scale : 2200-4000)			
1.	M.B A.	5	1	1
2.	Home Science : Each in Clothing & Textiles and Foods & Nutrition	2	—	—
3.	M.B Patel College of Education (For CTE Non-Vocational)	4	1	1
	With Specialization as under			
1.	Mathematics			
2.	Physical Science			
3.	Biological Science			
4.	Social Sciences & Humanities			
5.	M.B. Patel College of Education	1	—	—
6.	Commerce	1	SC/ST	3
7.	Botany (Preferably) Angiosperm & Taxonomy)	1	—	—
8.	English (In Commonwealth Literature)	1	–	—
9.	Material Science (Material Processing)	1	—	—
10.	Economics	1	—	—
11.	Sociology	1	SC/ST	2
12.	Gujarati (In Bhashavigyan)	1	—	—

All the posts carry benefits of D.A., G.P.F., Gratuity and Pension as per University rules.

Detailed qualifications will be supplied alongwith the prescribed application forms. Only SC/ST candidates are eligible for making applications under the reserved category. After the third attempt the reserved category shall be treated as unreserved. Candidates belonging to SC/ST Castes should attach a Certificate from competant authority.

Note : The candidates who have applied earlier need not apply again as their carlier applications will be taken into consideration.

Vallabh Vidyanagar
Dated : 25.4.1990.

Niranjan Upadhyaya
I/c REGISTRAR

INDIAN COUNCIL OF MEDICAL RESEARCH
I.C.M.R. AWARDS-1990

Indian Council of Medical Research invites nominations/applications from Indian Scientists for its various prizes and awards in the field of bio-medical sciences. Application forms and other relevant information about the prizes can be obtained from the Director General, **Indian Council of Medical Research, Ansari Nagar, New Delhi-110 029.** Nominations and completed applications should reach this office **on or before 31-7-1990.**

ANNAMALAI UNIVERSITY

Phone: 04144 - 2249
Telex: 4602-201 ANUC-IN

NOTIFICATION

Applications are invited for admission to the following courses for the academic year 1990-91.

		Cost of application form & Prospectus	
1.	B.E./B.E.(Chem.) Degree	Rs. 35/-	
2.	B.E. Degree (Part-time) **Branches:** 1. Civil, 2. Civil & Structural, 3. Mechanical and 4. Electronics & Instrumentation.	Rs. 35/-	
3.	M.E./M.E.(Chem.) Degree (Regular & Part-time) 1. Water Resources Engineering and Management (Part-time only), 2. Environmental Engineering (Part-time only), 3. Structural Engineering (Regular), 4. Geo-Technical Engineering (Regular), 5. Thermal Power Engineering (Regular only), 6. Production Engineering (Regular only), 7. Power System Engineering (Regular & Part-time) and 8. Chemical Engineering (Regular & Part-time).	Rs. 35/-	
4.	M.C.A. Degree (Master of Computer Applications).	Rs. 50/-	
5.	Post B.Sc. Diploma in Computer Science and Applications	Rs. 35/-	
6.	B.Sc. (Agri.) Degree	Rs. 35/-	
7.	M.Sc. (Agri.) Degree **Branches:** 1. Agronomy, 2. Agricultural Entomology, 3. Microbiology, 4. Plant Pathology, 5. Soil Science and Agricultural Chemistry, 6. Agricultural Economics, 7. Genetics and Plant Breeding and 8. Horticulture.	Rs. 35/-	
8.	B.Pharm. Degree	Rs. 60/-	Self Financing course.
9.	D.Pharm.	Rs. 40/-	
10.	B.Sc.(Nursing)	Rs. 50/-	

The application alongwith prospectus can be had from the REGISTRAR, ANNAMALAI UNIVERSITY, ANNAMALAINAGAR-608 002 on payment of amount indicated against each course in person or by sending a demand draft drawn in favour of the REGISTRAR, ANNAMALAI UNIVERSITY payable on Indian Bank or Bank of Madura at ANNAMALAINAGAR or State Bank of India at CHIDAMBARAM alongwith a self-addressed envelope of size 30 cm × 13 cm stamped to the value of Rs. 1.80 (for B.E./B.Sc.(Ag.) a self-addressed envelope of size 40 cm × 27 cm. stamped to the value of Rs. 5.00) with the name of the course for which the application form is required superscribed boldly on the envelope. The name of the course should be clearly indicated in the requisition letter. The application form together with the prospectus will be issued from 02-05-1990.

The last date for receipt of filled in application by the University is as follows:

1.	B.E./B.E.(Chem.), B.Sc.(Ag.) B.Pharm., D.Pharm. and B.Sc.(Nursing)	**05-06-1990**
2.	M.C.A. and Post B.Sc. Diploma in Computer Science and Applications.	**15-06-1990**
3.	B.E.(P.T.), M.E./M.E.(Chem.) (Regular & Part-time)	**15-06-1990**
4.	M.Sc.(Ag.)	**30-06-1990**

The University will not be responsible for any delay.

No. K2/4/90
Annamalainagar.
Dated: 20-04-1990.

Dr. PR. Karpagaganapathy
REGISTRAR

KHAJA EDUCATION SOCIETY'S

KHAJA BANDA NAWAZ COLLEGE OF ENGINEERING

ROUZA BUZURG
GULBARGA-585 104 KARNATAKA
(Affiliated to the Gulbarga University)
Estd. 1980.

No.: KES/KBNCE/ADM/1990-91 Phone: Off.: 21387 STD: 08472.

ADMISSION NOTICE: 1990-91

We are happy to state that "Khaja Banda Nawaz College of Engineering, Gulbarga", is one of the Premier Institutions of Professional Education in this region from the stand point of staff, equipments and results. Six Batches of Civil and Mechanical Engineering have already left the portals of this college.

Applications are invited for admission to the following:

(A) B.E. DEGREE (FOUR YEARS COURSE):
(1) Civil Engineering, (2) Mechanical Engineering, (3) Electronics & Communication (4) Instrumentation Technology, (5) Computer Science, (6) Industrial Production Engineering.

(B) POST GRADUATE COURSE:
(1) M.E. CIVIL "Structural Engineering"

Minimum qualification for admission to the Engineering Course is a pass at the Two years Pre-University Course OR HSC/10+2/Intermediate/I.Sc./Senior School Certificate/AISSC/OR equivalent examination approved by the Gulbarga University with a minimum average of 50% Marks in PHYSICS, CHEMISTRY, MATHEMATICS (English must be one of the subject as per the existing admission rules framed by the Gulbarga University).

Diploma Holders of Karnataka or other states recognised by the Gulbarga University with a minimum of 50% of the total marks in the Final year examination of the said Diploma are also eligible.

Students desirous of seeking admission can get the application forms (on payment of Rs. 100/- which include the registration fee, in the shape of D.D., in favour of THE PRINCIPAL, KHAJA BANDA NAWAZ COLLEGE OF ENGINEERING: GULBARGA, payable at Gulbarga a self-addressed envelope 9" × 4" duly affixed with postal stamps of Rs. 8/-) OR contact in person HON. SECRETARY, KHAJA EDUCATION SOCIETY: GULBARGA, on or before **30-07-1990** alongwith Original Certificates. Recommendations will not be entertained.

The Management has the right to reject any application without assigning any reason.

NOTE:– (1) Girl candidates may also apply.
(2) Hostel facility is available for boys only.

HON. SECRETARY

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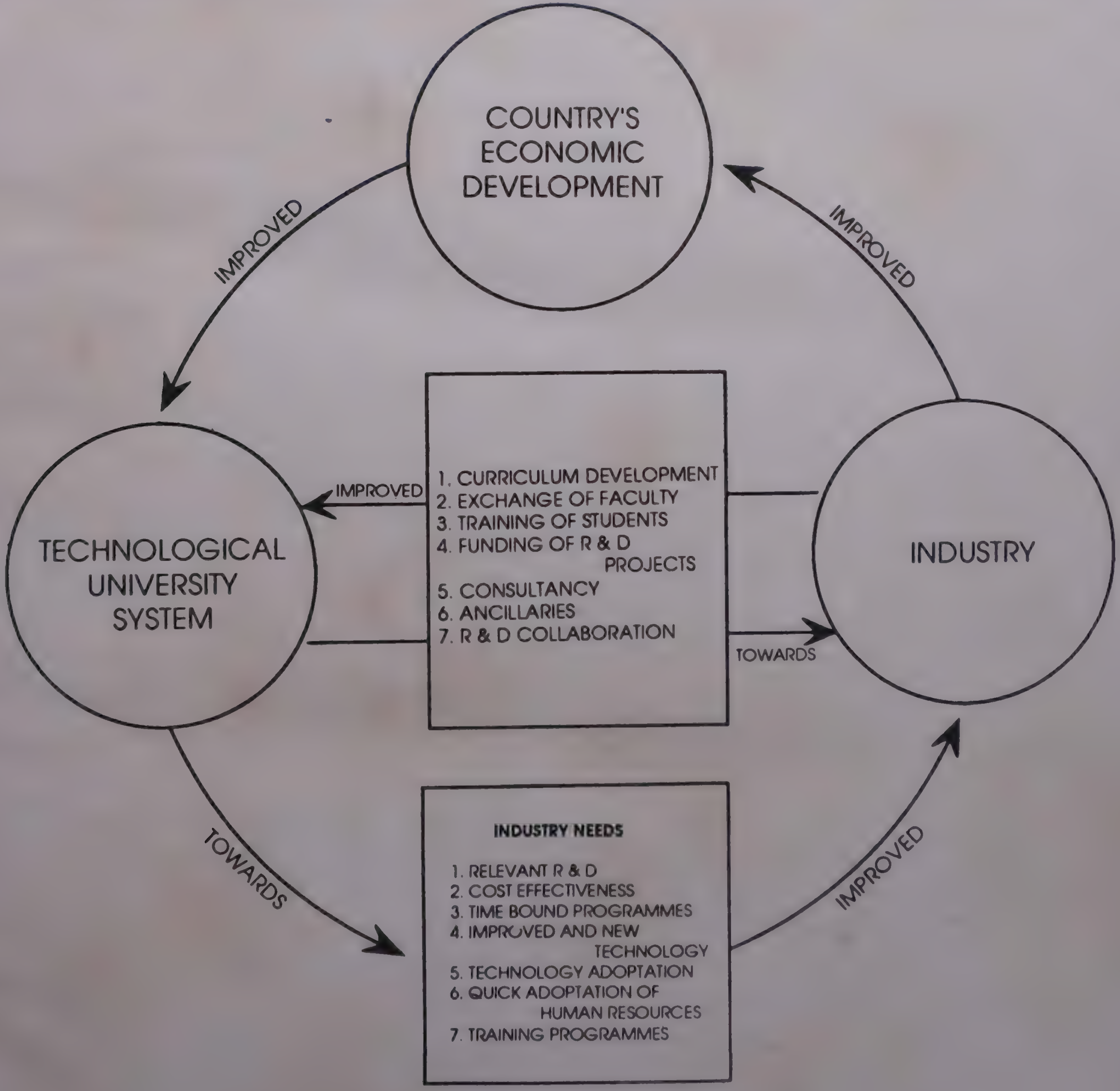
COUNTRY'S ECONOMIC DEVELOPMENT
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1. CURRICULUM DEVELOPMENT
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7. TRAINING PROGRAMMES
IMPROVED

SWAMINADHAN MODEL
FOR
UNIVERSITY-INDUSTRY SYMBIOSIS

ALIGARH MUSLIM UNIVERSITY
ALIGARH

ADMISSION NOTICE NO. IX
SESSION: 1990-91

Applications on prescribed forms are invited from eligible candidates for admission to the following courses for the session 1990-91. The last date for receipt of completed application forms in the Admission Office of the University is mentioned against each course.

Wherever the eligibility requirement for a course is prescribed as B.A./B.Sc./B.Com./B.Sc. (Agr.) etc., it means that the respective degree should have been obtained under 10+2+3 system of education.

Those who hold a Bachelor's degree under 10+1+3 or 10+2+2 system of education and have also passed the Pre-Master's (Bridge) Course/I-Year of Master's degree (old) Course will be considered eligible for admission to Diploma in Personnel Management and Diploma in Marketing Management.

S.No:	Name of the course	Last date for receipt of applications
1.	Diploma in Women's Polytechnic: (i) Electronics Engg. (ii) Electronics Engg. (T.V. Technology) (iii) Costume Design & Dress Making (iv) Office Assistantship & Secretarial Practice	07.7.1990
2.	Post M.Sc. Diploma in Museology	07.7.1990
3.	Diploma of Teaching (Urdu Medium)	30.6.1990
4.	Diploma in Steno-typing	30.6.1990
5.	Post M.A. Diploma in English Language and Literature	07.7.1990
6.	Post M.A. Diploma in Urdu Translation	07.7.1990
7.	Diploma in Personnel Management	22.6.1990
8.	Diploma in Marketing Management	22.6.1990
9.	B.E. (Evening)	16.7.1990
10.	M.Sc. Engg. (Civil/Electrical/Electronics/Mechanical)	30.6.1990
11.	M.Sc. Engg. (Chemical)/P.G. Diploma in Petroleum Processing	30.6.1990

Full details regarding the course, eligibility requirement, rules for sending application forms etc. are given in the Guide to Admission No. 2. Application forms and Guide to Admission can be obtained on requisition addressed to the Deputy Controller (Admissions), Post Box No. 52, Aligarh Muslim University, Aligarh-202 002, through post by sending a crossed Indian Postal Order for Rs..5/- drawn in favour of the Finance Officer, A.M.U., Aligarh alongwith a self-addressed envelope of 23x15 cms. size affixing stamps worth Rs. 8/-. In case the application form is required to be sent by Registered Post, stamps worth Rs. 14/- should be affixed on the self-addressed envelope. If more than one application forms are required, separate stamped envelopes should be sent with the requisition. **Request for application forms (desired to be sent through post) shall be entertained only if received in this Office at least a week before the last date prescribed for receipt of application forms.**

SUBMISSION OF APPLICATION FORMS:

(a) **Women Candidates:**

Women candidates for admission to Diploma courses in Women's Polytechnic, should send their applications complete in all respects supported by the required documents including the attested copy of mark list of the qualifying examination, as well as the registration fee, to the Principal, University Women's Polytechnic, Aligarh Muslim University, Aligarh-202 002 by the specified date.

(b) **Internal Candidates:**

All Internal candidates should submit their applications complete in all respects, supported by the required documents including the attested copy of mark list of the qualifying examination, as well as the registration fee, to the Office of the Provost concerned at least two days before the last date for receipt of applications.

(c) **Others:**

Rest of the candidates are required to submit their applications, complete in all respects, supported by the required documents including attested copy of mark list of the qualifying examination, as well as the registration fee, to the Deputy Controller (Admissions), Post Box No. 52, Aligarh Muslim University, Aligarh-202 002 by the specified date.

Incomplete applications or those received late will not be accepted, and no further correspondence will be entertained regarding such applications.

N. Moideen
CONTROLLER OF EXAMS. & ADMISSIONS

30 MAY 1990

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Editor :
SUTINDER SINGH

Development Finance for Higher Education

M.R. Kurup*

An area has not received the attention it deserves in the country is development finance for general higher education. Higher education has been in the concurrent list indicating cooperation between the States and the Centre. The University Grants Commission, UGC, is the arm of the Centre and the Director of Higher Education, or an equivalent, of the State Governments. Apart from students, the sources of finance, at present, are the UGC, the State government and the Governing Body of the college.

UGC Finance

Contrary to the popular perception, development finance from the Central government through UGC, is not available to all colleges. Only a college which is permanently affiliated to a recognised University is eligible for central assistance. According to the annual report for 1987-88, only 3903 out of 6597 institutions were listed under section 2(f) of the UGC Act. A glance through the list of Arts, Science or Commerce Colleges affiliated to the University of Bombay will reveal that about 50% alone are listed by the UGC for grants. In other words, half of the colleges under a premier University like Bombay do not receive any Central assistance. For Maharashtra as a whole, it implies that over 300 out of about 600 colleges do not receive any development assistance from the UGC.

One of the reasons for such a scanty flow of fund, is the Statute as well as the practice followed in Universities. For instance, though Section 45 of the Bombay University Act reads as "no college shall be granted permanent affiliation unless it has a standing of six years...", the University has been counting the "six years" from the year the students of the college appear for the final year University examinations. It could mean, for an Arts-Science-Commerce college, catering to a three year degree course, an effective period of nine years. The University, on application, will appoint a Local Inquiry Committee, LIC, to visit the college for an on the spot inspection. Its report, on submission, has to go through the statutory bodies like the Academic Council, the Executive Committee and the Senate of the University for final acceptance by the State government. Armed with the government notification, the college will have to approach the UGC for enlisting it under section 2(f). It takes on an average three years for these procedures to be completed in the normal course. It would, therefore, mean a total period of 12 years for even a college, satisfying all conditions of affiliation, to be brought under 2(f) for the UGC assistance. This is one of the reasons for the skewed distribution of UGC assistance in the country.

It is a pity that there are colleges started as early as 1973 waiting for permanent affiliation, for one reason or the other. Other conditions being satisfied, if the "six years standing" is interpreted from the first examinations, which are conducted either by the university or by the colleges "on behalf of the University", the colleges could be made eligible for Central Govt. assistance from the seventh year itself. Since the Act has not stated six years of standing "from the first bach of students appearing for the final examinations", the present interpretation unwittingly is

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**Principal, Kelkar Education Trust's V.G. Vaze College, Mulund, Bombay-400081.*

to the disadvantage of the colleges. Maybe realizing the gravity of the situation, the UGC has now revised the guidelines to "a standing of three years", vide a communication dated December 1987. Universities should seize the opportunity to confer permanent affiliation to really deserving institutions without further lapse of time. The act as well as the UGC requirements could be met by counting the six years from the date of establishment, without waiting for the time consuming amendment to the Statute.

The financial consequence of the situation is grave in as much as various financial packages for the creation of educational and related assets at the institutional level in addition to academic packages like faculty improvement and exchange programmes, etc. are not available to these institutions. Why should a young and enthusiastic teacher be deprived of a research grant or the institution be denied of the "Pass Book" facility to import equipment for scientific research on a mere technical ground of non inclusion of the college under section 2(f) ? The limited finance available with the governing bodies or colleges, meant for meeting the current needs, perforce will be diverted to meet requirements, which could have been financed with UGC funds. The existing norms are not flexible enough to promote initiative and the much needed innovation in relatively new institutions. **Just as the nationalization of commercial banks led to a change in the emphasis from "security oriented lending to purpose oriented lending", it is time now for the UGC to shift its norm from the "age" to "performance" based.** Vice-Chancellors should have the discretion to recommend institutions with adequate infrastructure and potential for good performance to be brought under 2(f) and 12(b) to overcome the time lag. This will bring an element of healthy competition among institutions. In one of our earlier studies, we found only 11 out of a sample of 30 colleges to have performed above the sample average in terms of results at the University examinations.

State Finance

The State Government, which covers only the revenue expenditure, has adopted a residual approach, The tuition and certain other fees collected from the students are deducted from the total approved items of expenditure, to arrive at grants due to an institution. Even here, the approved items do not include a number of operational areas in a college, including essential personnel like mali, sweepers, liftman, watchman, general utility technicians, etc. They are disowned by the State leaving no alternative to the governing body but to bear them.

With continuous pressure on admission, often new divisions and subjects have to be introduced. A college needs additional classrooms, laboratories, modern tools and instruments for general and vocational courses, library, reading and conference rooms, hostels, staff quarters, gymkhana, boys and girls common rooms, out door sports and games facilities, health clubs, participation in a variety of Inter-collegiate competitions, to mention a few. College Magazine, Faculty Journals, Annual Reports reflecting the levels of curricular and cocurricular activities have to be brought out. Furniture and fixtures need replacement and additions. The college bulidings have to be periodically painted. Maintenance of gardens and related environment needs manpower and other inputs. They add to the quality of the institution as well as to the teaching and learning process in the college. However, there is very little finance available for meeting these needs. under the present grant-in-aid scheme.

Governing Body

It may not be necessary that the governing body in all cases is responsive. Barring a few, many of its members may not be in a position to appreciate the circumstances under the expenditures, which are disallowed by the State official, had to be incurred.

Under the system of grants-in-aid prevailing in Maharashtra prior to 1973, the interest of the governing body, in general, was direct and positive. The revised salary payment system introduced since 1973 as well as the exclusion of building rent since 1978, appear to have, unfortunately, led to a waning of interest of the governing body in the financial affairs of the college. This puts a lot of constraint on the activities of the college. Ways and means have to be found to ensure an adequate flow of finance to colleges if they have to play a determining role in promoting socio-economic development with equity. These institutions may help the welfare State in reducing inequity in income distribution through human capital development in the lower income segments. For people who have neither capital nor land, the only source of livelihood is labour. They are able to fetch a better wage, if educated and skilled, than otherwise.

The foremost factor responsible for the present resource scarcity is the abysmally low fees prescribed for general higher education. With the revised salary hemes for teaching and non-teaching staff, the xisting fees would not exceed 12 to 15 per cent of the oney cost of higher education. Around 85 per cent f the cost is borne by the State or the governing ody of the college started on a temporarily unaided asis. The continuously increasing cost has forced e Maharashtra government to come out with the olicy of colleges without grants or partial grants in id for an initial period upto 7 years. It would mean hat only those private managements which have an ninterrupted command over resources to meet the nnually growing financial requirements, alone need ome forward with proposals to start colleges. What appens in reality is different. Barring a few institu- ions, most of the colleges are started by politically r socially motivated people, expecting to carry on vith direct or indirect public support. It was all ight in the good old days, but time has changed and nanaging a college, as it should be, has become oo demanding. As a consequence, in many institu- ions, the financial burden is found to be passed, irectly or indirectly, on to the students and the staff, esulting in deterioration in the quality of educa

Students are requested for financial support in one orm or the other. Second, the essential inputs such s books, periodicals, teaching aids, instruments and quipments are deferred to minimise expenditure. Co-curricular and extra-mural activities, involving xpenditure are kept to the minimum. Thus in many ases, the money as well as the real burden of the overnment policy of unaided colleges, is on the tudents. The results of many of these institutions t the University examinations and other competitions end to be low. Yet, students and the community round are happy for they would otherwise have to ither abandon studies or been forced to go to far off laces at a higher cost.

The burden is passed on to the staff, as well, at nany places. There were reports of payment of token, eferred, delayed, partial or even non-payment of alary to the staff. The faculty has no alternative out to accept the situation in view of genuine financial onstraints juxtaposed with limited alternative job pportunities available to them. They are optimistic nd cooperative as their services would be secured ith regular salary once the institution is brought nder grant-in-aid after the stipulated period.

No one will deny that improving the quality of ducation will require adequate resource support in dition to imaginative and effective administration. Resource bottleneck tends to reduce even well-known and vibrant institutions to mere static entities. We should realise that the Principal is called upon to deal with youngsters at a crucial stage, which will have a bearing on their future lives. But the present mechanism of grants-in aid is likely to make him more a bureaucrat than an educationist. The question is that, if the college is not able to enjoy central government assistance, the State government has a static approach and the governing body is unable or unwilling to spend, what could be done at the institutional level ?

Most of the public spirited governing bodies in their initial enthusiasm, set up colleges without knowing fully what is in store for them in future. It is obligatory on their part to fulfil all University conditions, involving large financial outlay, for getting permanent affiliation. The existence of hundreds of temporarily affiliated colleges in Maharashtra with over a decade of standing, shows that they are not very keen about permanent affiliation in view of the financial difficulties. When governing bodies become disinterested, the burden of managing the institution is likely to be on the Principal or a group of teachers close to him. They cannot abandon the 'ship' and hence, go about soliciting public support to meet both the ends. In the circumstances, quality becomes secondary. No institution, faced with such a dismal financial position, particularly in its infancy, will be able to serve its real cause.

Education is not like any other department of the government; it percolates into every aspect of human existence. It moulds the way of life, in addition to determining the contours of interpersonal relationships. It is one factor that will protect and promote democratic institutions and aspirations of the people. As such, the principles of financial allocation will have to be different from the rest of the wings of the government. **If the department of education is preoccupied with rigid system of rules and regulations and cannot cope with developmental needs of higher education, then it is necessary to create a separate institutional arrangement. A Finance and Development Corporation may be able to help many an institution to break the vicious circle of mediocrity.**

In the circumstances, the government has to think fast and positively if higher education is to play an effective role in nation building. It is time for the State to come out with a White Paper, which will make the academic body of students and faculty, in addition to the general public, aware of the present

(*Continued on page 10*)

A Model for University-Industry Symbiosis

D. Swaminadhan*

The fundamental objective of Technological University is to subserve the technology needs of the country including the generation of necessary human resource inputs required for the industry and industrialisation. To achieve this objective, the entire technological education and research has to be developed around the requirement of the Industry and the emerging areas of technology. No University or institution can succeed in this direction in isolation without involvement from Industry. Academic world and the Industry together hold the key to the technology development in many of the core areas of our country's economy. The survival and renewal capability of the Industry depends largely on the induction of improved technology. When the University and Industries work together both are benefited. The University gains insight into the problems of the Industry and this provides a base for research and education. Unfortunately, in our country right from the beginning, the university system and Industry have been run on parallel lines. The Industry never gained confidence in the University and the University never thought of the Industry in its technoiogical pursuits. Hence, all the subsequent efforts to develop linkages remained only as symbolic relationship.

The foundation to technological University's meaningful role can be laid strongly only when a symbiotic relationship is developed with the Industry. The ultimate aim of such a relationship will be the creation of confidence in industy by the University resulting in the industry voluntarily involving the university right from the feasibility/project appraisal stage itself. The development of such relationship requires firstly careful understanding of the industrial needs such as relevance, cost effectiveness, time bound programmes, technology upgradation etc., by the University and inturn the understanding of the University's capabilities and limitations by the Industry. Further, the dimensions of such relationships have also to be clearly delineated and understood in their proper practical and functional perspectives with a clear vision of opportunities and awareness of the constraints and limitations on either side. The various dimensions which require such considerations are:

Reorientation of University Curriculum

The University should have its curricula and research oriented towards the need of the Industries and entrepreneurs so that the human resources generated from the University can quickly be adopted to the industrial environment without undue loss of time.

Exchange of Experts

It is necessary for the university to create an environment in teaching for healthy mix of university faculty and experts from the industry thereby leading to the concept of exchange of experts between the teaching institutions and industries.

For example, while starting a new course in the emerging areas, the university can restrict itself to forming a 'core group' with a minimum staff and invite experts from industry to form the 'Visiting faculty'.

Involvement of Teaching Staff in Industry

The core faculty of the University itself should be exposed rigorously to the requirements of industries. This can be achieved by deputing the teaching staff of the University both on short-term and long-term duration for specific or general industrial assignments.

University to Gain Confidence of Industry

University must so develop its capabilities as to be looked upon by the Industry and by the Industry and by entrepreneurs as their technology brain trust, reservoir of the technology know-how and technological human resource which they can tap with confidence.

University as a Consultant in R & D

The University should create the research capabilities directly and in collaboration with Industry so that it is sought after as a consultant in R & D in technological problems and to be able to take up sponsored research and supply technological manpower against the demand of the Industry and entrepreneurs.

Technological Database

The University should be a source of information

Vice-Chancellor, Jawaharlal Nehru Technological University, Hyderabad-500 028 and advice on technology choice by keeping a constant tab on an updated database with adequate knowledge of technology change, technology innovation, technology transfer, technology adoption and model plans whose technologies have earned recognition and acclaim. It should become a clearing house for all information on the technological developments taking place in the country.

The practising technologist may not find time for the various technological problems particularly those pertaining to efficiency and economy, automation, innovation, import substitution and maintenance of imported machinery. There may be problems of technology choice. In all such matters, the availability of a broad database at one place with resource persons either available within the University itself or with the knowledge of the University itself or with the knowledge of the University faculty, would go a long way to help even the biggest of the industries. The amount of help it can provide to the small and medium sector is, of course, infinite and most invaluable.

Inhouse Training Programmes

In order to provide insight into the latest technology strain, the University should be able to run inhouse or general training programmes for technologist employed in the industry and thus help the industry in its efforts for human resource development.

Involvement of University

The university should develop the capability to prepare industrial projects on its own as well as on demand from entrepreneurs and should also be in a position to advise the financial and promotional institutions on the project referred to by them, to the extent of the technological aspects.

Project identification, formulation, appraisal implementation, monitoring and evaluation are infant fields of knowledge and expertise in India, particularly in the field of industry. In the field of large scale industry this expertise is very scarce and rare. It is the duty of the University to step into this vacuum and if it does so, it will find that it is not lacking in support from the industry and from entrepreneurs. In fact, financial and industrial promotion institutions would also welcome this role being increasingly taken over by the University.

Cooperation from Industry

The stakes of the clientele in the University should be such that they should fully cooperate, and liberally offer their time and facilities to the University, be it for teaching or participating in research or curricula formulation or throwing open the doors of the industry to the students, faculty and researchers.

University's Self-Reliance and Finances

The University works towards the ultimate aim of self generating finance, where consultancy, sponsored research and training programmes should be able to finance more basic and applied research which alone can be the bed-rock of all the need-based research and consultancy or any other contribution to the industry and industrialisation. This is the approach adopted by many Universities and institutions in Europe and America as well.

In short, the University must enter the Country's industrial life and become a part of it and thereby become a partner in progress, and a frontline organisation in technology and technological human resource development for the industry, its promoters and entrepreneurs and R & D organisations, as well as the technological trouble shooter for industry. It should also become a conduit between industry and technology experts in various fields in the country and abroad. Though the task is extremely difficult, being an absolute necessity it can be achieved slowly, steadily and with a serious commitment to a well laid-out action plan.

The action plan to convert these dimensions and aims into achievements will have to be spread over many phases. The Action Chart for the immediate phases may be as briefly outlined below :

1. Creation of a body to promote and coordinate University-Industry linkages;

   Industrial Consultancy Services Unit (ICS) of JNTU has been restructured and redesignated as Bureau for Industrial Consultancy and Research & Development (BICARD);

2. Identifying Suitable persons within the university to head and share the responsibilities of the above body;

3. Preparing a job Chart for the above body ;

4. Identifying and preparing a list of top Executives and Technologists of various industries and "of all sectors of all Industries" and working out a system of inviting them to address the faculty and students.

   This can be done industry-wise.

5. Preparing a comprehensive Directory of Technology Experts (DITEX) in different fields of Technological expertise and know-how and forging continuing links with them through various means of involvement like seminars, talks, lectures, research collaborations, research guidance, sharing consultancy work with them and offering awards, honours, recognitions. Honorary Degrees, Visiting Professorships, positions like Emeritus Professorship, guest faculty positions. etc.:

6. Associating JNTU with State Government bodies like PEMB, SFC, APIDC, APSIDC, APITCO etc. so that there could be mutual exposure to the new technologies and also it can act as an advisory body on technological matters.

7. Reviewing postgraduate and graduate curricula and reorient these to meet the needs of industry by involving experts from industry in framing the syllabi.

8. (a) Conducting industry survey to know :

   (b) Processes technology and equipment being used in the industry.

(c) The areas in which the University could contribute to industry in matters of research and consultancy and human resource development.

(d) Technology choices : technology change, technology import, technology innovations, technology transfers, etc.

9. Extensive participation of industrial experts in M. Tech. programmes of JNTU and further to make the students take up projects based on the industry working with the experts of industry.

10. Providing for faculty training in industry.

The essence of the University-Industry interaction is conceptualised and presented in a unique model (Figure 1). ☐

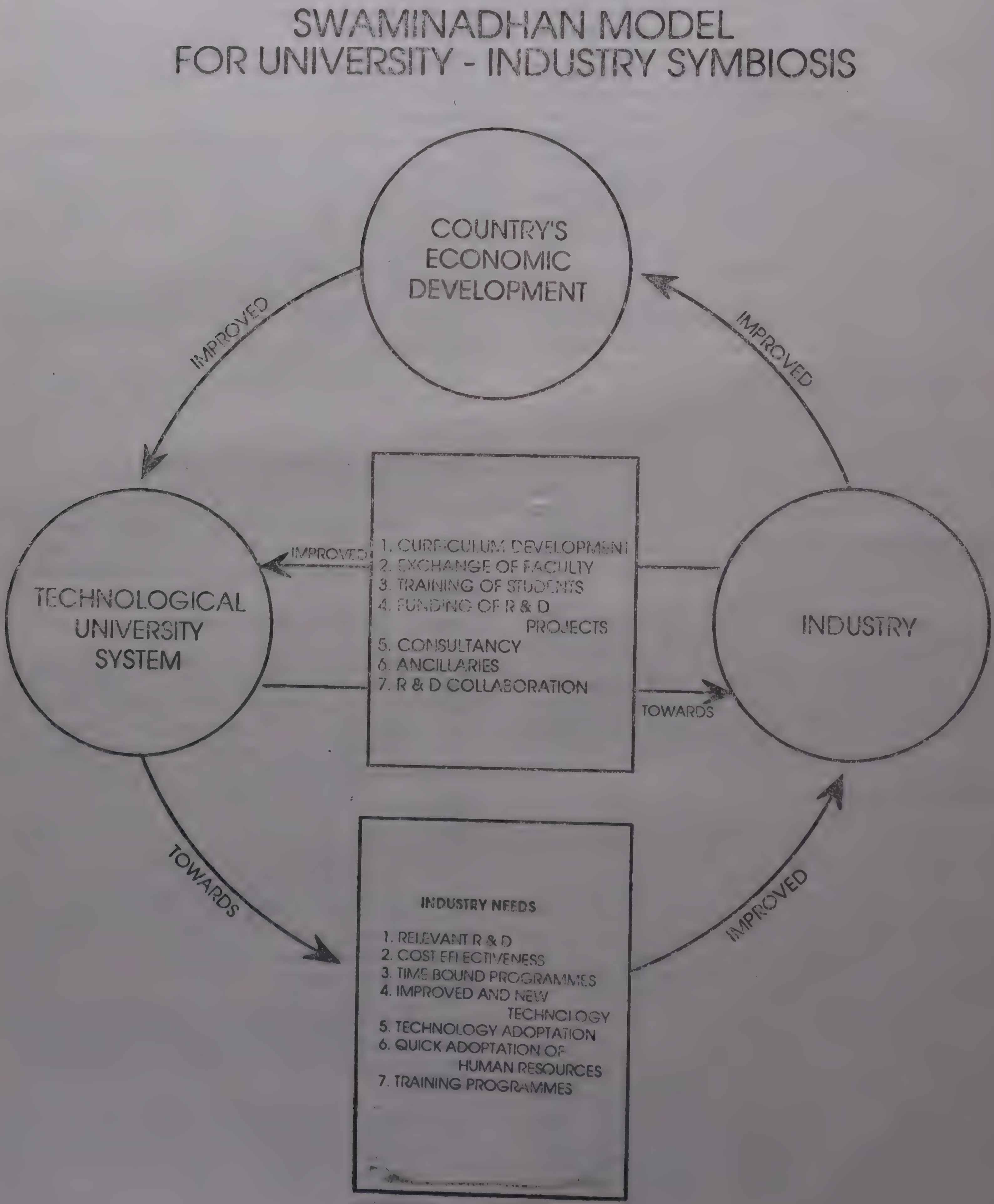
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Fig. 1

UNIVERSITY DEGREE
Cutting the Gordian Knot

A.K. Ghosh*

"Examination Reforms in Universities—A Status Report" incorporated in *University News*, January, 29, 1990 issue reveals that "as a result of the steps taken by the University Grants Commission (UGC) for implementing various measures of examination reforms in the university system, the long-term measures like Continuous Internal Evaluation have been introduced at different levels in 93 Universities and Institutions; Question Banks have been or are being developed by 31 Universities and Institutions; Grading System in some form or the other is in operation in 57 Universities and Institutions; and Semester system is in vogue in 83 Universities and Institutions. Besides, the Commission has advised the Universities and Institutions to implement immediately certain minimum examination reforms relating to re-designing of syllabi and question papers and conduct of examination. It is learnt that 89 Universities have taken steps to re-design the syllabi of various subjects, 85 Universities and Institutions have taken steps to redesign the question papers and 86 Universities and Institutions have taken steps to ensure smooth conduct of examination."

"At the Vice-Chancellors' Conference held at Srinagar on Oct. 6, 1989, it was recommended that the unitary universities as well as the autonomous colleges and departments should introduce all the measures suggested by the Commission whereas the affiliating type of universities should implement the Minimum Examination Reforms Programme at all levels and long-term measures at the post-graduate level before implementing them at the undergraduate level."

The information, at best, re-confirms that there is a great deal of dissatisfaction regarding the country's educational system and a cry for reforms. However, there appears to be little serious effort at attacking the root of the problem. Drastic problems call for drastic solution.

What are the problems? The most pressing is that of educated unemployment. While the quantity of the university output is increasing, its quality is deteriorating. Guardians, especially those belonging to the lower middle class, regard education as an investment and expert a return on it. A great deal more time and energy (and money) are spent by an individual on preparing for life than is strictly necessary. This constitutes a waste of national wealth. To all this we have added a load of language on the student.

Our old educational systems based on verandah schools, the guru-kuls etc., collapsed in the face of the system imposed by the British and patronised by them to serve their own purpose. Eventually, the B.A. degree was prescribed as the qualification required for recruitment to the better jobs under the government.

Today, a new academic session draws thousands of aspiring youngmen and women to the portals of our universities without any clear idea why they seek higher education. The vast majority of them, however, come not for any higher education as such but for acquiring the dubious advantage of possessing a university degree. For this, the youthful aspirants are not so much to blame as the socio-economic structure which puts a premium on the degree as a passport to all kinds of employment. Much of what is happening in the academic world seems oriented to devalue the concept and ideal of higher education into the cheap, commercial commodity called the university degree.

Do students come to our universities in order to learn something? This is a question which has eluded the 'educated' as well as the 'educators'. In fact, a majority of them are really 'refugees' who ask for shelter having no other place to go. So great is the craving for a degree that no price is considered too high. And so low is the longing for knowledge that no measure of effort seems worth its while. The degree holder is finally turned over to the second phase of his life as a marketable commodity in the employment market. He is not bothered with what the market has to offer. What society gives, he must take. What the rules ordain, he must follow. The social structure pushed him to the degree course. He never pulled himself to it or, for that matter, to the content of education that the degree is supposed to

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represent. Degrees have been debased as a result of various kinds of malpractices of which the latest at the higher level is the writing of a Ph.D. thesis by proxy. The UGC has not been able to ensure minimum standards for examinations leading to degrees nor has any equivalence been established on a nationwide basis. The consequence has been that degrees awarded by universities do not serve as crystal clear diamonds but as passports of doubtful merit unless proved otherwise.

In India, almost all white-collar jobs require the possession of a degree as a basic qualification for entry. This is true of jobs both in and outside the Government. The vast majority of office jobs has been equated to the university degree qualification. The clamour for degrees rises in proportion to the pressure for entering the clerical services. And the same degree is the basic requirement for entry into higher services. Thus, posts which have no comparison in any respect with each other have a common minimum qualification for entry—the university degree.

The intriguing position is that whoever wants to earn a living must attend a college to acquire a degree. Clerical posts are linked to a degree because the quality of the degree holders has been going down. It is true that standards of education, both at lower and higher levels, have visibly fallen. **How is it that the standards have fallen and are failing year by year when our educational institutions, as a whole, are better equipped today than ever before, when more qualified people are available for teaching and when modern scientific methods can be had for imparting education?** Many educational reforms have also been put through but the deterioration in standards is not being arrested. The explanation appears to lie in the unwieldy number of students which our schools and colleges find impossible to hold. In the world of economics, there is an optimum level or size, beyond which diseconomies set in. The same is the case when the intake of students becomes disproportionate to the optimum capacity of an educational institution. Our classrooms are vastly denser. A university teacher has to shout at the top of his voice to be heard by the back-benchers. Thus his performance becomes a test of his respiratory system, not the cerebral mechanism.

The question that confounds most is whether this Gordian Knot called University Degree deserves the sanctity that we incredibly ascribe to. Quite for sometimes, the feeling has been gaining ground that our examinations are unreliable and they should go. Dr. A. Edwin Harper, Jr. and Dr. V.S. Misra, in their book "Research on Examination in India" published by the NCERT some years ago exclusively proved that this was so. According to them, a candidate's success or failure is as much due to luck as to merit. This is the conclusion that their researches point to. When they got 90 examiners to mark the same ten History answer-books, they found no uniformity in the marking. One answer book which was considered the best by one examiner and was awarded 35 out of 50, was given only 11 by another examiner. The answer book which was considered the best by 77 examiners got marks ranging from 17 to 35. Seven examiners gave fail marks to the answer book which was considered worthy of distinction by one examiner and worthy of a first class by eight. Further, the 90 examiners did not agree on the average merit of the ten candidates as a batch. The average marks awarded to the group ranged from 8 to 22 out of 50. There was also wide disagreement about the class or division awarded. But this is not all. In the course of another such research study, the authors found that examiners did not give the same marks when they marked the same answer books twice. When 40 examiners were asked to mark a second time, 4000 answer books in History, Hindi, Biology and Mathematics, the pass percentage in some cases varied as much as 58 per cent from one marking to the next.

These are the research findings. But what is surprising is what the researchers say and suggest after they have got such knowledge. In spite of having indicated that passing and failing depend a great deal on luck they say that it shows the inadequacy of the examination system in the country. One would have thought it showed the absolute futility of the examination system. It is sufficient reason to scrap what we call examining altogether.

Their suggestions that grading in terms of five or six categories should be adopted instead of the 100 marks scale, that there should be proper scale conversions of the marks in different subjects, that choice should be eliminated from question papers and that there should be a system of grace marks based on the standard error of marking are suggestions that cannot eliminate erratic marking. It is difficult to see how these recommended measures can prevent the kind of marking they give examples of.

For instance, they give the example of an answer book being awarded 76% by one examiner and 22% by another. What measures can eliminate such discrepancy ? Obviously, the researchers evaded the full implication of their research.

We find it is futile to talk about the system of examination and examination reforms. Changes in the examination system are not going to mend matters. The fact that emerges is that it is not the examination system that needs to be reformed and salvaged, but the examiners who must be saved from the state of incompetence, demoralisation and corruption. Our examiners have been bullied into this condition. In some cases examiners are instructed to see that a minimum percentage of the candidates they are asked to examine is passed. And when even after that the results are poor, there is the system of moderation by which marks are inflated by a certain percentage.

Again it is seen, if an examiner is strict he is not asked to examine again. If examiners are very lenient then the complaint is that they are destroying the standards. Thus, contradictory demands are made on the examiners : they must be strict and they must be lenient. That is to say, they must honestly judge and at the same time see that they do not take judging too seriously. It has corroded the confidence of examiners and has even gradually corrupted and paralysed the very faculty of examining and judging. We have kept on expanding education and consequently the number of examinees at every stage of our education has been increasing. This has been accompanied by the increasing unwillingness to let the process of evaluation function. **What has happened is not any degeneration of a system of examination but the subversion of examining as such. In this, we have all conspired. And now we delude ourselves thinking that examination system tinkering can set matters right.**

This is not a plea to excuse the culpability of examiners who connive with this subversion. Nor is it a plea for retaining a particular examination. The point I wish to make is that the necessary process of evaluating performance is being eliminated from our system of education. We reject evaluation because we do not want to face the fact that our education has failed in educating. Too many students failing at the various examinations mean just that. Therefore it seems we want to have examinations that do not involve genuine examining. Many of the advocated measures for reforming examinations seem to have this objective in view.

Of course, examinations are not there for the sake of examinations. Professor J.N. Kapur, succinctly enumerates the purposes of examinations as follows : "(a) To evaluate the performance of students and to form judgement about their academic achievements. (b) To inform the students about their progress so that they may adjust their learning programmes accordingly. (c) To inform the teachers of the progress of students so that they can adjust their teaching programmes accordingly. (d) To provide motivation for hard and continuous work by the students. (e) To provide motivation for continuous improvement of teaching by the teachers. (f) To provide useful and reliable information to prospective employers about the potentialities of the candidates as revealed by the examinations."

There seems to be no alternative to delinking the degree from the usual run of white collar jobs. For this, a nationwide system of recruitment should be devised for clerical and other comparable jobs within and outside the Government. Candidates who have passed the higher secondary or equivalent examination should be given specific training for a year or so, so that the basic knowledge required for jobs of this nature is imparted to them. The training would include office procedures and rules, drafting of letters, typing, shorthand, handling of office equipment and the like. This training should be on an extensive scale with the least restriction and preferably without any fees. Such a scheme would produce candidates for clerical and similar jobs, who would be capable of much higher performance than raw degree holders. The logic of the scheme can be extended to areas other than clerical as well.

We must appreciate that higher education is still a luxury in India but even the limited resources and manpower are being frittered away leading to a galloping devaluation of standards and academic integrity. While politicians have often played with the ebulient fervour of youth for their own narrow ends, both teachers and parents have, of late, been taking the line of least resistance and disowning their responsibility for the welfare of their wards. Students are a privileged community, free from the anxieties of existence and much less exposed to the realities of life. No doubt, they have their own problems but these are far less corrosive than those afflicting millions of wage earners. While they should naturally take an interest in events around them and also try to improve academic life and its content, strikes and gheraos on the slightest of provocations only ruin their careers and cost the nation dearly. It is better, for example, not to produce a doctor who does not know how to administer an injection. Likewise, such engineers should not be produced if they construct bridges which collapse like a house of cards in no time. It is quite dangerous to give an incomplete or faulty education in any discipline of life. If this situation cannot be improved, the alternative however desperate it may sound, will be to close down all the seats of higher learning until there is a greater appreciation for learning itself.

The country does not need, nor can it afford, an ever increasing army of clerks. The specific training for office jobs should cover only such a number as can be absorbed into employment within a resonable period. The rest will have to be diverted to agriculture, industry, technical training, rural works and similar areas of activity. This will enable them to ocntribute to the creation of national wealth at a stage in their life when frustration and disillusionment would have set in. Once the educational structure as a whole is geared to the needs of those who really seek and deserve the intellectual light, it would be easier for our society to progress in qualitative terms. A policy that accepts this logic would also help the government's employment-oriented programmes, which now receive only sporadic, often inconsequential, attention. Without a basic change in the strategy of educational planning, the outcome is bound to be bleak. This seems, therefore, the right time for declaring that the university degree is not required for clerical and comparable jobs, for putting into effect a training scheme for these jobs and simultaneously for restricting admission to higher education. The Hobson's choice lies in cutting the Gordian knot called the University degree. □

Development Finance for Higher Education

(*Contd. from page 3*)

scenario. Any attempt to increase the fees should be convincing as it may be resisted owing to the conspicuous low quality.

With the establishment of a special Finance and Development Corporation, akin to a Development Bank, at the State level, it may be possible to harness both the Central and State funds properly. Financial participation of the general public and the end-users of the products of education could also be envisaged.

One of the conditions of affiliation for a new college, for instance, is a deposit of an amount of Rs. 1 lakh with bank, as a Reserve Fund. If this fund is transferred to the Corporation as share participation by colleges, it would amount to over Rs. 650 lakhs in Maharashtra. The reserve fund, which was stipulated decades ago, could be raised in future. A matching capital participation each could come from the State and the Central Governments, making the initial paid up capital to the tune of Rs. 20 crores. The Corporation will enjoy all resource mobilizing facilities of other development banks. In case its "bond" is made fully tax exempt, considering the cause it serves, resources will never be a problem in the State. This can be extended with modifications if necessary, throughout the country.

An innovative autonomous Corporation would have its own advantages. It could be flexible, keeping in view the dynamics of higher education. It could work out the need for and type of institutions in different regions and sub-regions with the help of specialised studies of demand and supply, human resource projections, etc. New and relevant curriculum could be formatted in the form of suitable modules, the usefulness of which will make the consuming class to pay for it. It would also make autonomy of educational institutions a reality. We feel that the economically and socially weak as well as highly meritorious students could be taken care of by the State. Similarly, recovery of the cost of education from the beneficiaries during their future earning life by way of schemes such as loans, insurance linked annuities, deferred or instalments payment systems, coupon schemes, etc., could be attempted severally or jointly, depending on the suitability of the institution, students and the regions served.

Incentives for the institutions for excellence in curricular and extra curricular activities could be introduced. Productivity incentives, not necessarily in cash, for the faculty could be examined based on certain evolved academic parameters. What education needs today is a little professionalism to make it relevant. This appears to be difficult under the present arrangements. A task oriented autonomous Corporation, with expert participation, alone will be able to deliver the goods. Detailed modalities, which may differ from State to State, could be worked out once the need for an institutional arrangement is accepted.

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SWAMINADHAN MODEL FOR UNIVERSITY-INDUSTRY SYMBIOSIS

Dr. D. Swaminadhan, Vice-Chancellor of Jawaharlal Nehru Technological University, Hyderabad, Andhra Pradesh, has conceived and formulated a model for University-Industry Symbiosis with the objective of bringing about a greater and effective interaction between a technological university and industry in order to make both of them active partners in the country's economic development process for mutual benefit and their own growth and development.

In order to arrive at an appropriate action plan for effective implementation of the concepts formulated in Swaminadhan Model, a one day workshop was organised under the aegis of the Bureau of Industrial Consultancy and Research & Development (BICARD) of J.N.T. University, Hyderabad. The workshop was attended by about 60 participants from central and state puplic sector undertakings, private industrial enterprises, manufacturers' organisations and representatives from financial institutions besides the expert faculty of the University.

The main points made at the workshop under different topics of discussion were :

(A) Exchanges Between University and Industry

1. A healthy mix and exchange of University Faculty and experts from the industry is a necessary requisite to gain confidence of the industry for a need based plan of action.
2. Exchange programme of experts, help better interaction and technology transfer activities between the University and Industry.
3. Meaningful interaction between University and Industry is imperative for optimum utilisation of the resources.

(B) Curriculum Development

1. University curriculum and Research Schemes should be reoriented towards the industrial needs.
2. Engineering Curriculum should also include aspects of manufacturing techniques and entrepreneurship programmes.
3. All the engineering colleges should be linked with industrial sectors, a concept similar to that of 'teaching hospitals'.
4. Universities should organise entrepreneurship development programmes on a regular basis.

(C) Research and Development

1. The much needed interaction between the industry and University may be achieved when the main areas of development are identified by a group of experts from industry, University, Government and other promotional agencies. The plan of action for such programme can be scheduled as follows :

   (a) Representatives of the industry may outline their requirement of Research/Consultancy requirements along with the needed training programmes for the working professionals.

   (b) The University may maintain a directory of technology experts (DITEX) within the University and of expertise in other national laboratories located within the vicinity of the institution.

   (c) The problems concerned may be referred to experts for suitable solutions. Co-operation of Government/Promotional agencies such as APIDC, SISI, IDBI, etc. may be sought.

2. University may immediately take up R & D activities to solve the problems of the small and medium scale industrial units.
3. Sponsored and Collaborative (R & D) projects to meet industrial needs may be taken up jointly utilising mutual expertise.

(D) Technology Transfers

1. Latest technological developments may be transferred to the industry through organising in-house or general training programmes by the University.
2. University may be developed into a store house of information with updated data base and offer advice to the industry on technology choices.
3. Continuing education and in-house training programmes to the working professionals may be made a part of the regular programmes of the University.
4. University may act as a medium to acquire immediate technology and transfer the same to the industry.
5. Consultancy services may also be used as a mode of transfer of technology from university to industry.

(E) Self-Reliance

University may work towards the ultimate aim of generating finances through consultancy services and other interlinked programmes. The main activities are grouped as under :

1. To promote industrial consultancy & technology transfer.
2. To plan curriculum development & training programmes.
3. To collaborate in research projects, and
4. To develop Entrepreneurship & establish Ancillary units.

(F) Technological Cess

Government should collect technical education tax from Industries to share the cost of Technological Education.

RECOMMENDATIONS

Based on the discussions held during various sessions of the workshop the following recommendations were made :

1. To constitute a Committee comprising representatives of Industry, University, Government and Industrial promotional agencies to pursue the objectives of the model effectively.
2. University to seek institutional membership of the various associations of industries to maintain close contact for knowing the developments first hand.
3. To request the Government for nomination of faculty members of the University on the boards of industrial units under its control to enable them get the experience of running an industry which will attune the faculty members to identify the technological and managerial problems quickly.
4. To constitute a committee comprising representatives from the government, University, Industrial Development Bank of India, National Science and Technology Entrepreneurship Board, and Board of Apprentice Training to discuss the feasibility of setting up a STEP on the suggested lines.
5. To introduce a special elective course on Industrial Environment and Nation's Economy in the B.Tech. curriculum. Lectures by eminent persons from different industrial sectors are to be arranged, on specialised topics.
6. To create opportunities for faculty members to work in an industry for a short term (3 to 6 months). ☐

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Candidates will have to come to Kolhapur & attend the contact course for 2 weeks in the Diwali Vacation.

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K.C. Nair
PRINCIPAL

WORKSHOP ON INDIAN ECONOMY

A four-day Workshop on Indian Economy was recently held in Bombay under the auspices of the Department of Economics, University of Bombay. The main focus of the workshop was on Structure and Problems of Indian Economy i.e. India's agriculture, industry, monetary mechanism, taxation, foreign trade and planning and the significant developments/major breakthroughs therein.

Professor Ranganath Bharadwaj Director, Department of Economics, in his welcome speech, explained the main objectives of the Workshop. Besides an elaboration of the sub-topics under the broad areas of Agriculture, Industry, Public Finance, Money and Banking, Foreign Trade and Planning in India, he stated that the Workshop would make an attempt to highlight new breakthroughs/developments in each area so that the same could be appropriately dealt within the classroom. He also pointed out that the Curriculum Development Centre set up by the University Grants Commission had emphasised that all students of Economics, both at the undergraduate and the postgraduate levels, should possess an essential understanding and good grasp of the various issues of the Indian economy within an analytical framework; and that curriculum development should be a continuous process and the syllabi and the reading list should be updated from time to time by including important topics relevant to the Indian economy.

Dr. (Ms.) M.D. Bengalee, Vice-Chancellor, University of Bombay, in her inaugural address, stated that the topics chosen for the Workshop had tremendous relevance considering the fact that some of the basic problems we were left with at the time of Independence such as illiteracy (especially among women), poverty, inequality, unemployment, etc. still continued to be with us and awaited solutions. She observed that the subject of Economics had undergone significant changes in the light of the fast momentum of its growth and evolution of new ideas. This implied that teachers should make efforts to keep themselves abreast of the latest developments in the subjects that they are teaching, and apply this knowledge to day-to-day activities. The Vice-Chancellor pointed out that "there is no last word in knowledge—it is everchanging and expanding. The teachers cannot escape this fact. Efforts should be made to go forward and not slide back". She stressed the need for generating some work-experience among the students when they studied to enable them to become more productive and contribute to national prosperity. She also stressed the importance of interdisciplinary studies and appealed to the teachers not to confine themselves merely to a single discipline.

The Workshop was marked by lively discussions, and threw up several action areas with regard to T.Y.B.A. (Economics) course on Indian economy. The participants in their own assessment of the Workshop, felt that the deliberations enabled them to have a better understanding of the structure and development of the Indian economy which could be useful in classroom teaching.

Dr. (Ms) Joy P. Deshmukh of the ULP summed up the discussions and gave a consolidated picture of the issues that emerged across the Sessions. Dr. V G. Mutalik Desai, Chairman, Board of Studies in Economics, University of Bombay, in his concluding remarks, observed that the discussions at the Workshop were not only free and frank throughout but also helped in fostering a more active channel of communication and understanding between the members of the staff of the University Department of Economics and teachers in Economics in the affiliated colleges.

Orientation Programme for University and College Teachers

The Academic Staff College of the Jodhpur University recently organised its 13th Orientation Programme for university and college teachers. The programme was attended by 32 participants belonging to 12 different disciplines.

Inaugurating the programme Prof. (Dr.) M.L. Mathur, Vice-Chancellor, University of Jodhpur, observed that in any educational system, the teacher played a pivotal role and was a crucial link in the development of a nation. The basic aim of the orientation programme, he said, was to motivate the young college teachers to provide them opportunities for professional and career development, to create an awareness of their potential to do tremendous good to society in general and youth in particular. Orientation Programmes, Dr. M.L. Mathur said, had become necessary to make young teachers aware of new teaching methodologies, pedagogy and educational psychology to sharpen their professional skills and encourage them to take initiative for innovation and creative work. He also mentioned that the student of today had become more demanding and exacting. He is more serious in his search for knowledge as compared to students of previous generations. In this age of knowledge explosion the teacher had to constantly update his knowledge to keep abreast of the latest developments. Dr. Mathur was of the view that formerly teaching was an "art", it is now becoming a judicious combination of "art" and "Science". The Orientation Programmes help new teachers in acquiring necessary skills and techniques to cope up with the new challenge. These are bound to lend status to the profession.

Dr. Mathur mentioned that the Orientation Programmes are organised to emphasise the importance of education and its linkage with economic and socio-cultural development. The teacher is enabled to appreciate his role in the organisation and management of college/University, in curriculum development and in achieving the national goals of democracy, secularism and socialism enshrined in our constitution.

The programme focussed on areas like organisational behaviour, environmental awareness, educational psychology, personality development, science of teaching (Pedagogy), professional ethics, policy making process in education, effective teaching and research skills, financial administration, service rules, management of student services, students' problems and computer familiarisation, etc.

In all eleven instructional Methodologies were deployed for the Orientation, viz, microlab, behavioural games, lecture cum demonstration, group discussion, panel discussion, brain storming, In-Basket Exercise, Interactive Video Method, Case Study, Book Review and Term Paper Reading.

A panel discussion was also held on "Problems of Higher Education—present scenario and curricular "Activities". The panelists were Dr. M.L. Mathur (Vice-Chancellor, Jodhpur University) Prof. Ravi Tikku (Principal, BDS Rampuria College, Bikaner) Shri L.S. Ujjwal (Divisional Rly. Manager (retired) and Shri Vikash Kapoor (M.B.M. Engineering College, Jodhpur).

Group Discussions were held on (a) Economic Environment of Education, (b) Political Environment of Education, (c) Social Environment of Education, (d) National Policy on Education, 1986 and the aims and objects of Higher Education; and (e) Socio-Psychological characteristics of College/University students.

The Case-Study Method was adopted in two sessions on 'Handling Students'.

Methodologies like "In-basket" exercise and inter-active video Methods were used to develop presentation skills. The participants were also given an exposure to computers (one session on basics of Computers and two on practicals) at the Computer Centre of the Dept. of Physics, University of Jodhpur. Each participant prepared and presented one book review and one term paper. These book review and term paper presentation were reviewed and evaluated by four experts, two in each case. The participants were also given the feedback by the experts to improve upon their skills.

East Zone VCs Meet

The East Zone Vice-Chancellors Conference was recently held at Gauhati University. Presided over by Shri D.K. Dasgupta, Vice-Chancellor, Bidhan Chandra Krishi Viswa Vidyalaya, West Bengal, the conference was attended by 22 Vice-Chancellors of universities and institutions of university status of Bihar, West Bengal, Orissa, UP, Madhya Pradesh, Assam, Meghalaya, Manipur, Arunachal Pradesh and Tripura.

The conference strongly felt the need for Regional offices of the University Grants Commission (UGC) especially for the north eastern region for better functioning of the apex body. The VCs were of the opinion that a State Council for higher education be constituted with authority to plan for higher education and its funding. They also observed that public opinion should be mobilised in order to obtain necessary funds from the Government for various academic projects.

For better management of education at higher level, the conference felt that autonomy of colleges should be seriously thought about.

The conference called for appropriate steps to secure adequate funds and coaching facilities for promotion of sports and physical education. Fund allocations to the State and Central universities should be based on certain specific norms so that the universities could get an equitable share. It also decided that socially relevant curriculum should also be developed in the universities. It recommended for the establishment of a department of national languages in all universities for better national understanding and integration.

Indian Industries in the Nineties

Prof. K.C. Malhotra, Vice-Chancellor of Himachal Pradesh University said that the responsibility of Science and Technology

Personnel was to adopt the technologies to our needs. The country, he said, had to popularise and elevate mass and intermediate technologies, in keeping with Gandhian traditions. He was inaugurating a 2-day National Seminar on Indian Industries in the Nineties organised by the Department of Commerce and Management Studies of the University. Prof. Malhotra said that Indian Industry should divert a fraction of their financial resources to reap the bounties of innovations which our graduates and scientists could create for them. This would be the key to rapid industrialisation in the nineties. The dream of 'Jobs for all' could be realized through large scale entrepreneurial effort. Just inscribing the right to job in the Constitution will not serve any purpose, he said.

Prof. Malhotra said the push, ambition and aggression of the Indian intellectual, documented world over, had to be channelised in creating a new entrepreneurial class of S & T personnel. We need to train them in Indian socio-economic environment for making them acquire social skills to transfer their expertise into socially useful production.

Prof. Lallan Prasad of Delhi University in his keynote address said that during Nineteen nineties technological changes would compel industries to modernise, or otherwise go out of the race. The International Economic Environment would be surcharged by the emergence of trading blocks in East and West and thus making it more difficult for our industries to enter world market and even protect home market, he said.

Prof. Prasad said that a large middle income group was emerging in India opening vast opportunities for the manufacturers of consumer goods. The role of government would be shrinking and private entrepreneurs would have more opportunities in years to come.

Prof. U.C. Singh, Professor and Head of Department of Management of Panjabi University said that with 42% of population in India living below poverty line, industrial growth on a large scale was not possible. The middle income group was emerging but this constituted only a 5% of the population and it might not have a positive effect on the large scale growth of industries. Private Sector Industries were subsidy based in India. These have to be efficiency based in the larger interest of the nation. Multinationals should not be encouraged to establish consumer goods industries to produce tooth paste, blades and soft drinks, Prof. U.C. Singh said.

Prof. Lokesh Koul, Dean of Studies, H.P. University stressed the need for coordination between industries and institutions imparting vocational education. Professor M.K. Sharma, Dean of the Faculty of Commerce and Business Management {Studies of Himachal Pradesh University underlined the new priorities in the new industrial policy of the government. The priority shall have to be given to labour intensive industry during the nineties, he said.

Over 50 participants from different universities of India attended the Seminar.

Special Assistance for Osmania Journalism Dept.

The Journalism Department of Osmania University will develop print media to strengthen research and publications programmes including the addition of Desk-Top Publishing equipment. This was approved at the first meeting of the Advisory Committee of the UGC's Special Assistance Programme (SAP) for the Department held recently at the University. Presiding over the meeting Prof. T. Navaneeth Rao, Vice-Chancellor, said that the Department of Journalism which had a very wide potential must be fully tapped and efforts should be made to strengthen the professional teaching, research base as also publications and extension activity.

Padmasri Prof. Anjan Kumar Banerji, Dean of Arts and Head, Journalism Department, Banaras Hindu University and Chairman, UGC's Mass Communication Panel said that in view of the over 35-year contribution to mass communication education by Osmania Department of Journalism, the UGC selected this Department as the first in the country in the subject to receive the special Assistance Programme of Rs. 30 lakhs spread over for five years (1989-'94) during which new courses in print medium including advertising and public relations, etc., could be started besides strengthening teaching and documentation facilities.

Prof. S. Bashiruddin, Co-ordinator of the SAP, presenting the review and projections of the programme said that it was proposed to invite nationally eminent media personnel and scholars to give extension lectures in the advanced areas of communication and to have guest faculty drawn from professional mass communicators to update the knowledge and skills of both the staff and the students. Prof. Bashiruddin who is also the Chairman of Board of Studies in Journalism, said that new research and training programmes including workshops and seminars would be organised in the coming years.

Dr. J.S. Yadavana, Director,

Indian Institute of Mass Communication New Delhi suggested that team-research projects relevant to the region should be taken up by the Department. He also suggested the use of electronic data base for research and information processing.

Management Diploma Through Correspondence

The Punjabi University proposes to start a two-year diploma course in Business Management through correspondence from the next academic session. Besides, the three-year MBA, postal course, which was so far meant for defence personnel only, will now be open to industrial managers, administrators, bureaucrats and technocrats. This was announced by Dr. U.C. Singh, Head of the Department of Business Management while speaking at the function organised to release the 'Indian Management Studies Journal', published by the University.

Dr. H.K. Manmohan Singh, Vice-Chancellor, who presided, said that modern management techniques should be carried to the real targets in view of the growing awareness about the value of managing organisations on scientific lines. This, he said, would help in improving the overall productivity and career prospects of the targets.

The Vice-Chancellor said that the micro studies and case analysis carried success stories of management philosophies and practices and helped in the development of professional management culture. The publication of studies relating to the ethos of management effectively contributed to the development of Indian theory of management.

Watershed Development Project

The Gandhigram Rural University, in its pursuit of blending education with rural extension and applied research, has embarked upon a massive Watershed Development Project with variegated input and support from Anna University (Madras), Non-Government Organizations and the District and Block level Government Departments and institutions. The project aims at covering 30,000 acres extending to 12 panchayats in the native district. The activities include afforestation, water and soil management, resulting in the preservation of forest wealth, expansion of the cultivated area and generation of employment.

It is proposed to undertake the following major activities under this project :

(i) Create awareness among the local people through campaigns and use of audio visual aids, folkarts to motivate them to participate actively in the watershed development programme.

(ii) Use latest methods of soil conservation and employ women, who are at present cutting and carrying firewood from Sirumalai Hills at the rate of 300 head loads every day. Vettiver grass will be widely used.

Trends in MIS

Prof. Ramaswamy P. Aiyar, Director, Indian Institute of Management, Calcutta delivered the 9th Dr. Deepak K. Merchant Lecture at the IIT, Bombay. Speaking on Trends in Management Information Systems Development, Prof. Aiyar said that MIS have emerged as a more organised way of looking at the information needs of organisations based on development in the concept of Systems Approach, OR as a discipline and the presence of the computers in our midst. Dr. Aiyar analysed the growth of computer systems in information management and decision making and presented the possibilities in the future in the context of contemporary information technology.

HAU Receives German Equipments

Alexander Van Humboldt Foundation of West Germany has gifted Research equipments worth Rs. 2.5 lacs to Dr. A.S. Virk of the Department of Animal Nutrition of Haryana Agriculture University in recognition of the excellent work done by him in this field. These equipments will be used by the faculty and postgraduate students for the efficient evaluation of ruminant feeds for their available energy and degradable nitrogen content.

ADMISSION
ENGINEERING AND PHARMACY

JANATA SHIKSHAN PRASARAK MANDAL, PUSAD-445215, DIST YAVATMAL (M S.) Offers admissions to First year Engineering courses (CIVIL, MECHANICAL ELECTRONICS, COMPUTER ENGINEERING, CONSTRUCTION TECHNOLOGY AND INDUSTRIAL ELECTRONICS), First Year Diploma in (CIVIL MECHANICAL ELECTRONICS), First Year Degree and Diploma in PHARMACY, Direct Admissions to Second Year B E & Pharmacy for diploma holders. For detail information & free brochure send envelope bearing stamps of Rs. 2.20.

PRINCIPAL

News from UGC

INSAT-1B Programme of UGC

Between 24th May to 31st May, 1990 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 Noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

1st Transmission

6.00 a.m. to 7.00 a.m.

24.5.90

"Computer Literacy—I : Information Processing System"
"The Story of Words—I"

25.5.90

"Kodaikanal Observatory"
"Defence Mechanisms—Repression"
"Ecosystem—I : The Whispering Brook"

26.5.90

"Hour USA : OMNI—The new Frontier (Spinal Meningitis)"
"A Door to the Out Doors"
"Pen—Pals"

27.5.90

No Telecast

28.5.90

"The Race : A Programme on the Cyclotron"
"Management Functions and Behaviour—Personnel Functions"
"The Fight Against Hunger : Man Made Protein—II"

29.5.90

"Distillation"
"Correspondence Course—A First Hand Experience"
"Cosmetics"

30.5.90

"Cyclone Resistant Rural Houses"
"The French Revolution"
"Desert Bats"

31.5.90

"University Round Up"
"The Pursuit"

2nd Transmission

12.00 Noon to 1.00 p.m.

24.5.90

"Signs and Communications"
"Fathomless Folklore"
"Teaching of English Spellings"

25.5.90

"Talk on Fascination and Use of Outer Space"
"Defenee Mechanism—IX"
"Forest in Peril—I"

26.5.90

"Portraits of a City—II"
"Career Guidance : Modern Trends in Journalism—II"
"Pearl of Ceramics"

27.5.90

No Telecast

28.5.90

"Polarisation of Light"
"Understanding Unemployment —II"
"Grants of the Microworld"

29.5.90

"Chemical Kinetics—II"
"Shadow Puppet Making"
"The Human Brain"

30.5.90

"Piston Assembly for Fuel Efficient Engines"
"Images of Women in History —IV"
"Viruses"

31.5.90

"University Round Up"
"The Pursuit"

MOTHER TERESA WOMEN'S UNIVERSITY

KODAIKANAL-624 102

Notification No. 61

DISTANCE EDUCATION UNIT

Applications in the prescribed form are invited from Women Candidates for admission to the following courses through the Distance Education Unit (Correspondence-Cum-Campus Programme).

1. Two Year M.A. Course in Women's Studies
2. One Year Post Graduate Diploma in Computer Applications (P.G.D.C.A,)

Eligibility for Admission :

1. M.A. : Any Graduate from any recognised University
2. P.G.D.C.A. : First Class B.Sc. Mathematics or Physics or any other subject with Mathematics as ancillary subject or B. Com.

Applications can be had from the Registrar, Mother Teresa Women's University, Kodaikanal-624 102 on requisition accompanied by a Postal Order for Rs. 15/- payable to the Registrar, Mother Teresa Women's University, Kodaikanal and a self addressed stamped envelope to the value of Rs. 1.80/-.

Last date for the receipt of filled in application is 23rd June, 1990.

REGISTRAR

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

CURRENT DOCUMENTATION IN EDUCATION

A List of Select Articles culled from Peirodicals received in the AIU Library during April, 1990

EDUCATIONAL PHILOSOPHY

Becher, Tony. Physicists on physics. *Studies Hr. Edn.* 15(1), 1990, 3-20

Shamsuddin, On Gandhian education and religion. *Edn. Q* 40(4), 1988, 7-8.

EDUCATIONAL PSYCHOLOGY

Cryer, Patricia and Elton, Lewis- Catastrophe theory : A unified model for educational change. *Studies Hr. Edn.* 15(1), 1990, 75-86.

EDUCATIONAL SOCIOLOGY

Baker, Victoria J. Education for its own sake : The relevance dimension in rural areas *Comp Edn. Rev.* 33(4), 1989, 507-518.

Walkerdine, Valerie. Feminity as performance. *Oxford Rev. Edn.* 15(3), 1989, 267-279.

EDUCATIONAL PLANNING

Gupta, Brahm P. Children's university. *Yojana* 34(3), 1990, 18.

EDUCATIONAL ADMINISTRATION

Caston, Geoffrey. Academic freedom : The Third World context. *Oxford Rev Edn* 15(3), 1989, 305-338.

Lakshmi, T.K S. and others. Context for educational management. *Edn. Q.* 40(4), 1988, 27-32.

Lysons, Art and Ryder, Paul. An application of Jones and James' perceived climate questionnaire in Australian higher educational institutions. *Hr. Edn.* 18(6), 1989, 697-705.

Strombom, Margareta. Evaluation of fellowships awarded to developing countries : What do the studies tell ? *Hr. Edn.* 18(6), 1989, 707-724.

CURRICULUM

McKnight, Curtis C. The organization of curricula in Mathematics. *Intl. J. Ednl. Res.* 14(2), 1990, 121-137.

TEACHERS & TEACHING

Feldman, Kenneth A. Instructional effectiveness of college teachers as judged by teachers themselves, current and former students, colleagues, administrators and external (Neutral) observers. *Res. Hr. Edn* 30(2), 1989, 137-194.

Harman, K.M. Professional versus academic values : Cultural ambivalence in University professional school in Australia. *Hr. Edn.* 18(5), 1989, 491-509.

Jones, John and others. Streaming in first-year university classes. *Studies Hr. Edn.* 15(1), 1990, 21-30.

EDUCATIONAL RESEARCH

Issac, Paul D and others Factors related to doctoral dissertation topic selection *Res. Hr. Edn.* 30(4), 1989, 357-373.

Levin, Sharon G and Stephen, Paula E. Age and research productivity of academic scientists. *Res. Hr. Edn.* 30(5), 1989, 531-549.

EDUCATIONAL TECHNOLOGY

Bateson, Allan G. and De Vader, Christy L. A fortran program to calculate proximity values and an averaged proximity matrix. *Ednl. Psy. Measurement* 50(1), 1990 131-134.

Willis, Norman E. Colloquium : Is educational technology delivering the goods ? *British J. Ednl. Tech.* 21(1), 1990, 60-61.

EDUCATIONAL EVALUATION

Abrami, Phillip C. How should we use student ratings to evaluate teaching ? *Res. Hr. Edn.* 30(2), 1989, 221-37.

Aiken, Lewis K. Marketest and Taketest : Two computer programs for administering objective tests. *Ednl. Psy. Measurement* 50(1), 1990, 143-46.

Brown, Marilyn K. Developing and implementing a process for the review of non-academic units. *Res. Hr. Edn.* 30(1), 1989, 89-112.

Eckstein, Max A. and Noah, Harold J. Forms and functions of secondary-school-leaving examinations, *Comp. Edn. Rev.* 33(3), 1989, 295-316.

Rami Reddy, Avenkata and Bhaskara Naidu, G. Achievement of students under detention and non-detention systems. *Indian Edn. Rev.* 23(3), 1988, 41-53.

Rao, T.S. Examinations and education. *Edn. Q.* 40(4), 1988, 16-19.

Shah, J.H. An evaluation tool for a teacher-educator. *Indian Edn. Rev.* 23(3). 1988, 18-26.

Terenzini, Patrick T. Assessment with open eyes : Pitfalls in studying student outcomes. *J. Hr. Edn.* (*Ohio*) 60(6), 1989, 644-664.

Wigington, Henry and others. Students' ratings of instructors revisited : Interactions among class and instructor variables. *Res. Hr. Edn.* 30(3), 1989, 331-344.

ECONOMICS OF EDUCATION

Darling, Alexander L. and others. Autonomy and control : A university funding formula as an instrument of public policy, *Hr. Edn.* 18(5), 1989, 559-83.

Hinchliffe, Keith. Federal financing of education : Issues and evidence. *Comp. Edn. Rev.* 33(4), 1989, 437-449.

Johnes, Jill. Determinants of student wastage in higher education. *Studies Hr. Edn* 15(1), 1990, 87-99.

Khadria, Binod. Privatisation of higher education. *Mainstream* 28(24), 1990, 25-26, 35.

Muta, Hiromitsu and Sakamoto, Takashi. The economics of the University of the Air of Japan revisited. *Hr. Edn.* 18(5), 1989, 585 611.

Tilak, Jandhyala B.G. Centre-state relations in financing education in India. *Comp. Edn. Rev.* 33(4), 1989, 450-480.

ADULT EDUCATION

Das, Mamota. The learning process of illiteracy eradication. *Prog. Edn.* 64(9), 1990, 220-23, 28.

DISTANCE EDUCATION

Balasubramanian, Saraswathi. Evolving patterns of non-formal education at the university level in India, the U.K. the USA and the USSR. *Indian Edn. Rev.* 23(3), 1988, 83-88.

Carr, Ronnie. Interaction and independence, student support in distance education and open learning : Conference Report. Cambridge, September 19-22, 1989. *Open Learning*, 1990, 61-63.

Mauger, Simon and Ovens, Gill. Profiling for flexible learning courses : A system developed by Weymouth College Open Learning Unit. *Open Learning* 5(1), 1990, 40-45.

Paul, Ross. Towards a new measure of success : Developing independent learners. *Open Learning* 5(1), 1990, 31-38.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Ansari, M.M. The implementation of new schemes in higher education in India : A status report. *ABCD* (90) 1989, 2-8.

Brint, Steven and Karabel, Jerome. American education, meritocratic ideology, and the legitimation of inequality : The community college and the problem of American expectionalism. *Hr. Edn.* 18(6), 1989, 725-735.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

BIOLOGICAL SCIENCES

Anthropology

1. Chattopadhyay, Binapani. *Cultural ecology and political adaptation : A case study.* Calcutta.

Biology

1. Geetha, S. *Functional morphology of the digestive system in certain representative fishes.* Kerala. Dr. H. Suryanarayanan, Reader, Department of Aquatic Biology and Fisheries, University of Kerala, Trivandrum.

2. Kumaresan, K.R. *Control of macromolecular processes in bacteria : SOS independent repair of mitomycin C-induced DNA damage in Escherichia coli.* Madurai.

3. Singh, Yumnam Rajendra, *Studies on the ovipositional behaviour and developmental response of certain wild silkworms on different food plants with special reference to the quality of cocoon production.* Manipur. Prof. B. Prasad, Head, Department of Life Sciences, Manipur University, Imphal.

4. Subramanian, S. *Bioconversion of aquatic weeds for utilization in aquaculture.* Kerala. Dr. P.A. John, Prof. (Retd), 43, Subhash Nagar, Trivandrum.

Biophysics

1. Mukhopadhyay, Chaitali. *Specificity of L-arabinose-binding protein : A computer modelling study.* IISc.

2. Sanadi, Ashok Ramesh. *Studies on a chito-oligosaccharide specific lectin from Coccinia indica.* IISc.

Biochemistry

1. Anand, Shalini. *Some aspects of biochemical events associated with G_1-S traversal of S. Cerevisiae cell cycle.* JNU. Prof. Rajendra Prasad.

2. Bilasini Devi, S. *Nutritional assessment of the inhabitants of the central district of Maniput.* Gauhati. Dr. P. Goswami, Hony. Prof, Department of Biochemistry, Gauhati Medical College, Guwahati.

3. Kansara, Mala Suryakant. *Effect of polyamines and quanidines on phytochrome mediated regulation af glutamine synthetase and NAD kinase in pea. Pisum sativum L terminal buds.* Baroda.

4. Nandabalan, K. *Transcription af rDNA in rice.* IISc.

5. Patil, Satishkumar Baburao. *Evaluation of certain biochemical, physiological alterations and automatic balance in single and combined environmental stresses.* Nagpur. Dr. N. Nath, Department of Biockemistry, Nagpur University, Nagpur.

6. Prabhu, K. Ashok. *Xylanases from a thermophilic fungus Malanocarpus albomyces : Their isolation, properties and action on plant cell walls.* IISc.

7. Pradhan, Amitabha. *Studies on the transformation of drugs by antibiotic resistant intestinal flora with special reference to lactobacilli.* Calcutta.

8. Prashar, Yatindra. *Hormones and Cuscuta development polyamines : Their endogenous levels and role in haustoria formation and growth.* IISc.

9. Roy, Rajendra Prasad. *Primary structure of crystalline endoxylanase from Thermoascus aurantiacus.* IISc.

10. Sarkar, Sarmila. *Lipid and non-lipid constituents of oil-bearing materials.* Calcutta.

11. Shastry, Laxmi Seeteram. *Relationship of ascorbic acid to female reproductive events.* Nagpur. Dr. N. Nath, Department of Biochemistry, Nagpur University, Nagpur.

12. Valsala, P. *Role of copper in the metabolism of lipids, glycosam-inoglycans and glycoproteins.* Kerala. Dr. P.A. Kurup, 'Gouri Sadan' T.G. 4/1236, Kowdiar, Trivandrum.

Microbiology

1. Deopurkar, R.L. *Cell walls, wall autolysins and protoplasts from Microsporum canis.* IISc.

2. Desai, N.N. *Immunological and biochemical characterization of protein antigens of Mycobacterium tuberculosis H_{37} Ra. as recognized by sera from tuberculosis patients.* IISc.

3. Parikh, Himanshu Rameshbhai. *Role of abscisic acid during post harvest ripening of fruits.* Baroda.

Botany

1. Kathal, Rakha. *Morphogenetic studies on Cucumis melo L cv Pusa Sharbati.* Delhi.

2. Madhusudhana Rao, A. *Floristic studies on the flora of Cuddapah District, Andhra Pradesh.* Venkateswara. Dr. B. Suryanarayana, Department of Botany, Visvodaya Govt. College, Venkatagiri.

3. Misra, Manoj Rammohan. *Studies on salt tolerance of Sporobolus madraspatanus Bor : A forage halophytic grass.* Bhavnagar. Dr. A.J. Joshi, Reader, Department of Life Sciences, Bhavnagar University, Bhavnagar.

4. Nirmaljit Kaur. *Physiology of assimilates partitioning in relation to yield improvement in pigeonpea, Cajanus cajan (L) Millsp.* PAU.

5. Parkhi, Radha Dnyaneshwar. *Induced mutation studies in Ipomoea species.* Nagpur. Dr. A.S. Khalatkar, P.G. Department of Botany, Nagpur University, Nagpur.

6. Prom Kumar, D. *In vitro clonal propagation of selected cultivars of Gladiolus grandiflorus.* Delhi.

7. Seth, Neeru. *Ultrastructural and histochemical studies on seed development in Sesbania speciosa Taubert Ex Engler.* Delhi.

8. Sharma, Amit. *Studies on nematode parasites of Trigonella foenum—graecum L.* Rajasthan. Dr. P.C. Trivedi, Assoc. Prof., Department of Botany, University of Rajasthan, Jaipur.

9. Sudhersan, C. *Morphological and developmental studies on embryos and seedling in some palms.* Madurai.

10. Talwar, Harvinder Singk. *Physiological studies on groundnut, Arachis hypogaea L overcoming salt stress and factors affecting source sink relationship.* PAU.

Agriculture

1. Dixit, Shashi Pal. *Studies on the effect of liming on wheat soyabean-linseed cropping sequence in Himalayan alfisol.* HP Krishi. Dr. P.K. Sharma, Department of Soil Science and Water Management, College of Agriculture, Palampur.

2. Manjit Singh. *Biochemical diversity in relation to genetic divergence in Indian mustard. Brassica junea.* PAU.

3. Mishra, Girindra Kishor. *Influence of submergence on nutrients transformation in soil and biochemical changes in sugarcane.* Rajendra Agri.

4. Rambir Singh, *Studies on cropping systems for management of root-knot nematode, Meloidogyne javanica (Treub) Chitwood.* HAU.

5. Sharma, Bipan Kumar. *Biological control of Sclerotinia sclerotiorum (Lib.) de Bary.* HP Krishi. Dr. B.M. Singh, Dean, College of Agriculture, Palampur.

6. Siddhu, Sunita. *Identification and effectiveness of selected Lr genes in some leaf rust resistant wheats. T. aestivum.* PAU.

7. Singh, Shyam Bihari. *Studies on the effect of split application of nitrogen desicators and time of harvest on yield and quality of summer rice.* Rajendra Agri.

Zoology

1. Adak, Tridibes. *Studies on gene enzyme systems of two important vectors of malaria in India, Anopheles stephensi and Anopheles culicifacies.* Delhi.

2. Athikary, C.P. *Alimentary canal physiology of the Indian sand whiting. Sillago sihama Forsskal.* Mangalore. Prof. S.N, Hegde, Department of Applied Zoology, Mangalore University, Manglagangotri.

3. Bandyopadhyay, Sumita. *Inhibitors as probes in characterising the polytene chromosome replication schedule in Drosodhila.* Calcutta.

4. Bandyopadhyay, Susanta Kumar. *Genoma analysis in snake-head fishes.* Calcutta.

5. Bhaskaran, G. *A study on some aspects of ethology of the Indian palm squirrel. Funambulus palmarum.* Kerala, Dr. K.M. Alexander, Prof. and Head, Department of Zoology, University of Kerala, Kariavattom.

6. Chellayan, Susha. *Studies on the influence of growth regulators on morphogenesis and reproduction of certain insect*

pests. Kerala. Dr. G.K. Karnavar, Reader, Department of Zoology, University of Kerala, Kariavattom.

7. Guha, Sagarika. *Systematics and cranial osteomyology of the Indian glass fishes (Pisces : Ambanidae)*. Calcutta.

8. Homechaudhuri, Sumit. *Studies on fish haematology in normal condition and under environmental stress*. Calcutta.

9. Kesharwani, Bharat Kumar. *Studies on the role of microorganisms in degradotion of chlorinated hydrocarbon insecticides in soil*. HS Gour. Dr. U.S. Gupta, Lecturer, Department of Zoology, Dr. Harisingh Gour Vishwavidyalaya Sagar.

10. Rajiv, P.R. *Study on certain aspects of colour-change mechanism in a fresh-water fish. Heteropmeustes fossilis*. HS Gour. Dr. H.N. Bhargava, Prof. (Retd) Department of Zoology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

11. Ranganath, H.R. *Mite fauna (free living) associated with men and other animals*. Bangalore. Dr. G.P. Channa Basavanna. Prof. Department of Entomology, University of Agricultural Sciences, Bangalore and Dr. H.R. Srinivasachar, Prof. Department of Zoology, Bangalore University, Bangalore.

12 Yadav. Anu. *Functional and numerical responses of Cheyletus malaccens to its prey in a bulk of stored Wheat*. HAU.

Medical Sciences

1. Agrawal, Ram Kishor. *Studies on some derivatives of gum*. HS Gour. Dr. Pradeep Mishra, Department of Pharmacautical Sciences, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Chatterjee, Barid Baran. *Studies on the effect of cyanide vapour exposure on cable factory workers in Asansol Area*. Durgawati. Dr. J.C. Gupta, M.D. Premkuteer, 17-Nayagaon, Rampur, Jabalpur.

3. Gangopadhyav, Tuhin. *Evaluation of aristolic acid as a potential antifertility drug*. Calcutta.

4. Jain, Ajeet Prasad. *Evaluation of immune-status, its relation with infection and effect of immuno modulation*. Nagpur. Dr. B S. Chaubey, Govt. Medical College. Aurangabad and Dr. B.S. Garinath, M G- Institute of Medical Sciences, Sewagram, Wardha.

5. Maheswari, Amma S. *Medical mycology : A mycological study on Tienea versicolor*. Calicut. Dr. C,K. Jayaram Panikar. "Shanthi" 1/3736, East Hill Road, Calicut.

6. Yonjan, Bidywati. *Studies an growth and development of emetine yielding ipacic. Cephaelis ipecacuanha (Brot.) A. Richard. with special reference to temperature stress and pharmacognosy*. North-Bengal.

Animal Husbandry

1. Sarbjit Singh. *Comparative utilization of nutrients in poultry and swine*. PAU.

EDUCATION NEWS INDEX

A List of Select Articles and Editorials on Education from Newspapers received in the AIU Library during April, 1990.

EDUCATIONAL SOCIOLOGY

Gupta, Shyam Ratna. Indian Intellectuals-I : A colourful crowd. *The Hindustan Times* 17-4-90.

Gupta, Shyam Ratna. Indian Intellectuals-II : Real ones suffer. *The Hindustan Times* 18-4-90.

Nagaraja, Bhargavi. A productive slant to girls' education. *Deccan Herald* 1-4-90.

Pandey, Bala I. Women's education : Many plans, little progress, *patriot* 3-4-90.

WOMEN EDUCATION (Editorial), *Patriot* 10-4-90.

EDUCATIONAL POLICY & PLANNING

Amrik Singh. Budgets define NF's stance on education. *The Times of India* 7-4-90.

Avtar Singh. Politics of reviewing education. *The Assam Tribune* 2-4-90.

EDUCATION POLICY Review (Editorial). *Patriot* 20-4-90.

ELITISM IN education. (Editorial). *Deccan Herald* 11-4-90.

EDUCATIONAL ADMINISTRATION

Amrik Singh. Delayed decisions handicap education. *The Times of India* 21-4 90.

Bhuyan, B. Educational Department : Need for reorganisation. *Tha Assam Tribune* 19-4-90.

EDUCATION BILL (Editorial). *Deccan Herald*, 14-4-90.

EDUCATION FRONT (Editorial). *The Assam Tribune* 2-4-90.

Gowda, H.H. Anniah. Will more in number mean fall in standards ? *The Hindu* 4-4-90.

Mohanty, Manoranjan. Self-Governance in higher education. *The Times of India*, 28.4.90.

Nair, K.P. A case of wrong Yardstick. *The Hindu* 3.4.90.

Sagar, R. Technology and production. *National Herald* 26.4.90.

Sen, Rehana. Attacking at the grass roots. *The Hindustan Times* 29 4.90.

SHOTGUN ADMISSION (Editorial). *The Hindustan Times* 26.4.90.

Vedantam, Vatsala. The role of Vice-Chancellors. *Deccan Herald* 22.4 90.

LANGUAGE & LANGUAGE POLICY

Abraham. A.S. Importance of English : Taking a gragmatic approach. *The Times of India* 30.4.90.

Aggarwal, Kavita. Need for a global language. *Amrit Bazar Partika*, 30.4.90.

Chadha, Kumkum. English under attack. *The Hindustan Times* 29.4.90.

Dayal, Ravi. English and the Mulayam-headed, *Indian Express* 22.4.90,

HEADING FOR Babel, (Editorial). *The Pioneer* 6.4.90.

LANGUAGE PIN PRICKS (Editorial). *The Tribune* 22.4 90.

McFarland, Carlvle and Chaudhary, Pranava K. Is it possible to replace English as a medium. *The Times of Indl* 7.4.90.

VOCATIONAL EDUCATION

Atma Ram. Emerging trends in vocational education. *The Tribune* 22.4.90.

Joseph, A and Mutthirulandi, Raja. Alternative for non-specialist graduates. *The Hindu*. 10.4.90.

TEACHERS & TEACHING

Abdul Kareem, S To break the monotony of classroom lectures. *The Hindu* 4.3.90.

Anantha Krishna, K S. Education : A new dimension. *The Hindu* 24.4.90.

Krishnamurthy, V. Larger issues involved in Mathematics teaching. *The Hindu* 17 4.90.

RETIREMENT ISSUE (Editorial). *Amrita Bazar Patrika* 2.4.90.

Saikia, Siddhartha. Qualities essential for teaching profession. *The Assam Tribune* 11.4.90.

Singh, J Change but with core values intact. *The Hindu* 24.4 90.

Warrier, B.S. More of professionalism for technical teacher. *The Hindu* 17.4.90.

EDUCATIONAL RESEARCH

Nag, S.K. and others. Shanti Swarup Bhatnagar Awards : An exclusive club. *The Economic Times* 25.4.90.

EDUCATIONAL TECHNOLOGY

Aulakh, Navneet Singh. The Vienna vanisher : *The Tribune* 5.4.90.

TELE-EDUCATION (Editorial). *Patriot* 18.4.90.

EDUCATIONAL EVALUATION

Chadda, Somesh. Eligibility test for lecturers. *National Herald* 1.4.90.

Devinder Bir Kaur. Unfair means at exams. *The Tribune* 15.4.90.

ENGINEERING EXAMS (Editorial). *Deccan Herald* 9.4 90.

Mahajan, V.S. Rewarding them for merit or deceit. *The Pioneer* 1.4.90.

Mathur, V.S. Need for continuous comprehensive evaluation. *The Hindu* 10.4.90.

Shamsuddin. Examination system : A great national waste. *National Herald* 5.4.90.

ECONOMICS OF EDUCATION

Kurup, M.R. Raw Deal to unaided colleges. *Free Press Journal* 16.4.90.

Kurup, M.R. and Thatte, L.R. Higher education : An empirical survey. *The Economic Times* 13.4.90.

Thakur, Ram Chander. Half are lost before class V. *The Tribune* 5.4.90.

LIBRARIES & BOOKS

Advani, Sangeeta. Asiatic Society Library : In dire straits. *The Economic Times* 25 4 90.

Surinder Singh. No obscene. *The Tribune* 15 4 90.

STUDENT & STUDENT ACTIVITIES

Easwara Reddi, A. Student unrest ; A human problem. *The Hindu* 10 4.90.

PHYSICAL EDUCATION & SPORTS

Nishat, Md. Sabir. NSS : Youth for development. *The Assam Tribune* 8.4.90.

ADULT EDUCATION

Jayagopal, R. and Ranjinadoss, M.J.A Communication technology for adult literacy Programmes. *The Hindu* 4,4 90.

Majumdar, Ananda. Literacy through new primers. *The Statesman* 20.4,90.

ELEMENTARY & SECONDARY EDUCATION

Gupta, S.P. 5 points to improve secondary education. *The Pioneer* 9.4.90.

Majumdar, Aurobindo. A newspaper in the school. *The Assam Tribune* 1.4.90.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Ambirajan, S. Whether Australian higher education ? *The Hindu* 17.4 90.

Dasgupta, Shibani. Education for all ? *Patriot* 22.4.90.

Mahajan, Shobhit. Pak education is in a terminal state of neglect. *The Times of India* 9.4 90.

INSTITUTIONAL PROFILE

Bagchi, Ranjit. USIS to give more facilities to readers at new premises. *Amrita Bazar Patrika* 24.4.90.

Chatterjee, Jayashree. Santiniketan : A personal view. *The Statesman* 15.4.90.

Smith, N.R. Threat to 140 year old college (St John's College, Agra) *The Statesman* 27.4.90.

BIOGRAPHICAL PROFILE

Arthur, R.A.J. Prabhu Guptara : Cross cultural currents. *The Economic Times* 3,4.90.

Ward, Colin. Geoffrey Ostergaard : Anarchist academician *National Herald* 6.4.90.

CLASSIFIED ADVERTISEMENTS

BANARAS HINDU UNIVERSITY

(Selection Committee Section)

CORRIGENDUM

For the posts of Dy. Registrar, Public Relations Officer, Asstt. Registrars.

Vide Advertisements No. 4/1989-90 and No. 5/1989-90, the University had advertised the posts of Deputy Registrars, Public Relations Officer and the Assistant Registrars respectively. For all these posts, one of the Essential Qualification was "a Post-Graduate Degree with atleast 55% marks or its equivalent."

The University has now decided that the requirement of 55% marks at Post-graduate stage for the aforesaid posts may be relaxed in respect of such candidates who possess long experience of educational administration and outstanding performance.

Applications for these posts will be entertained on the prescribed form duly supported with the Bank Draft/Indian Postal Order/Overseas Postal Order for Rs. 10/- (Rs 2 50 for candidates belonging to Scheduled Castes/Scheduled Tribes) in favour of the Registrar, Banaras Hindu University, towards application fee. Application forms and details of qualifications for the above posts will be supplied on receipt of crossed Indian Postal Order/Bank Draft of Rs. 2/- in favour of the Registrar, BHU alongwith self-addressed envelope of 23 cm x 10 cm size carrying stamps of Rs 2.60. The last date for receipt of application in the office of the Registrar (Selection Committee Section), Banaras Hindu University either by post or by hand will be June, 9, 1990. No application shall be entertained after the last date from external, in-service employees and the candidates residing abroad.

Note : Those who have already applied timely for the aforesaid posts of Deputy Registrars, Assistant Registrars & PRO need not apply again. They may however send 10 copies of their latest Bio-data.

INDIAN INSTITUTE OF TECHNOLOGY

BOMBAY

P.O. IIT, BOMBAY-400 076

Advertisement No. E-16/90-91

Executive Engineer (Estate) In CPWD Scale

Applications are invited from citizens of India for the above permanent post in the prescribed form obtainable free of charge from the Registrar, IIT, Powai, Bombay-400 076, on request accompanied by self-addressed envelope (25 cm x 10 cm). Persons employed in Government/Semi-Government Organizations or Educational Institutions should apply through proper channel. The post carries allowances such as D.A., C.C.A., H.R.A., as per rules of the Institute which at present corresponds to those admissible to the Central Government employees stationed at Bombay. Depending on qualifications and experience, a higher pay may be offered. Candidates belonging to SC/ST categories will be given preference. Candidates called for interview will be paid 1st class train fare from the place of their residence and back for the shortest route.

Executive Engineer (Estate)—(One post)

Revised scale of pay :

Rs. 3000-100- 3500-125- 4500.

(Likely to be effective shortly).

Total emoluments on the minimum of the scale is Rs. 4240/- per month (excluding H.R.A.)

Job Description

Subject to the immediate control of the Superintending Engineer, the appointee will be required mainly to initiate and execute civil maintenance including, building, roads, sewage, etc. He will be responsible for the sanitation and beautification of the Campus area including horticulture. The appointee will be also required to look after allotment of quarters, eviction proceedings under P.P. Act, 1972, land and property and all legal work connected with land, buildings and estate and functions as Estate Officer.

Qualifications

A good Bachelor's degree in Engineering, preferably in Civil Engineering or Technology of a recognised University/Institute.

Experience

A minimum of 10 years of experience in property maintenance and management in Army, Navy, Air-Force establishments: or in other Government or Public Sector establishment, large Educational or Research Institute or in a big Commercial Organization. Out of this, at least 5 years should be in a responsible position. The candidates should have first-hand knowledge of dealing with cases under P.P. Act, 1972. In case of necessity the incumbent may be required to hold additional or exclusive charge of any other area.

Desirable

1. Experience in application of Computers and Management information systems.
2. A degree in Law.

Age Limit : Preferably below 40 years.

The appointee will be required to stay in the Campus on payment of licence fee and other charges as per rules.

Completed applications should reach the Registrar, IIT, Powai, Bombay-400 076 through proper channel by the **31st May, 1990.** The envelope should superscribe the name of the post applied for.

REGISTRAR

OSMANIA UNIVERSITY

HYDERABAD-500007 (A.P.)

Advertisement No. 3/90
Dated : 5th May, 1990

Applications in the prescribed form together with the registration fee of Rs. 10/- payable through IPO/Demand Draft only (M.O. is not acceptable) drawn in favour of the Registrar, Osmania University are invited for the post of Reader in Electrical Engineering at the P.G. Centre, Godavarikhani, Osmania University so as to reach the undersigned in person or by post on or before **28-5-1990.**

Qualifications

(a) First Class Master's degree in appropriate branch of Engineering/Technology.
(b) Five years experience in teaching / industry / research at the appropriate level.

Note: Candidates from Industry/Profession with recognised Professional work equivalent to Master's degree in case of Engineering/Technology would also be eligible.

Desirable

Ph. D. degree in Engineering/Technology.

Pay Scale: Rs. 3700-125-4950-150-5700

Age: Not more than 40 years as on the last date of receipt of applications.

Note : (i) Age limit does not apply to the employees of this University.
(ii) Relaxation in age to the extent of five years shall be granted to the candidates belonging to Scheduled Caste, Scheduled Tribes and Backward Classes.
(iii) Relaxation in age to the extent of five years shall also be granted to the teachers who have put in at least five years of service in any of the college affiliated to the Osmania University.

Reservations : Applicable as per Roster System.

Application forms can be had from the Director, Department of University Press & Publications, Osmania University, Hyderabad-500007 on payment of Rs 10/- in person or by IPO/Demand Draft together with the postal charges for ordinary/registered post made payable to the Director, and by sending a self addressed envelope of 14-1/4 x 26-1/2 Cms.

REGISTRAR

MAHARSHI DAYANAND UNIVERSITY

ROHTAK

Advertisement No. 3/90

Applications on prescribed form are invited for the following posts :

University Teaching Departments

Professors : Physics one, Mathematics-one, English-one, Sanskrit-one, Music-one, Journalism & Mass Communication-one, Economics-one, Public Administration-one, Commerce-three, Business Management-one, Computer Science & Applications-one, Pharmaceutical Science-one, Military Science-one, Philosophy-one, Fine Arts-one, Sir Chottu Ram Chair-one, Dr. Ambedkar Chair-one and Jawahar Lal Nehru Chair-one.

Readers : English-two, Political Science-one, Public Administration-one, Business Management-two (one leave vacancy), Geography-one, Pharmaceutical Science-one, Sociology-one, Philosophy-two and Fine Arts-two.

Lecturers : English-one, Hindi-two, Sanskrit-one (leave vacancy), Journalism & Mass Communication-two, History-one, Psychology-one (leave vacancy but likely to continue) Political Science-one, Business Management-two Geography-three, Education-three, Pharmaceutical Science-one, Military Science-two, Philosophy-three and Fine Arts-three.

Directorate Correspondence Courses

Director-one, Co-ordinator-one (one year term at fixed salary of Rs. 4500/- P.M.)

Regional Centre, Rewari

Reader : History-one
Lecturer : Mathematics-one

University College (Morning Shift), Rohtak

Lecturers : English-one (Leave vacancy) and Psychology-one

Non-Teaching Posts

Dean, College Development Council-one.

Key Punch Operators-Four posts (two for Computer Centre and two for Directorate of Correspondence Courses)

Pay Scale : Rs. 260-6-290-EB-6-326-8-366-EB-390-10-400 (UGC unrevised)

Field of Specialisation

Professor of Mathematics : Pure Mathematics/Applied Mathematics/Mathematical Statistics.

Professor of English : (a) British Literature
(b) Literary Criticism

Professor of Physics : Theoretical Physics

Professor of Commerce (for one post)
(i) Banking Management
(ii) Cost & Internal Audit

Professor of Sanskrit : (a) Grammer
(b) Indian Philosophy
(c) Classical Literature
(d) Vedic Literature

Professor of Economics : Development Planning/Agricultural Economics/Public Economics/International Economics.

Reader of English : Phonetics/Stylistics/Modern, European and American Literature/Criticism.

Reader of Sociology: (a) Sociology of Inter-group relations.
(b) Sociology of Movements

Reader of Geography : Geomorphology/Regional Dev. and Planning/Settlement Geography/Political Geography/Resource Geography.

(Preference would be given to those having proficiency in Remote Sensing and Automated Cartography).

Lecturer of Mathematics : Pure Mathematics

Lecturer of English (a) Continental Literature
(b) Indo-Anglian Literature
(c) Comparative Literature
(d) Common-Wealth Literature

Lecturer of History : Modern India

Lecturer of Geography : (1st post) Research specialisation in Industrial Geography/Geography of Transport/Political Economy of Resource Utilisation, or any Branch of Physical Geography. Preference shall be given to candidates with degree or postgraduate Diploma in Statistics/Quantitative Analysis. (Knowledge of Remote Sensing and Computer Cartography shall be given preference).

2nd post : Research Specialisation in Regional Planning and Development/Geography of Human Welfare/Population Geography, or Political of Sociological interfaces of Geography.

(Knowledge of Remote Sensing and Computer Cartography shall be given preference).

Lecturer of Business Management : Personnel Management / Operations Management & Quantitative Technique/Marketing/Accounting & Finance.

Lecturer in Education : Education & Vocational Guidance, Comparative Education, Educational Administration and Management, Education Measurement & Evaluation, Psycho Dynamics of Mental Health, Recurrent Education.

Qualifications

1. **Professor of Computer Science & Applications**
   (i) M.S./M.Tech./M.E. in Computer Science/Computer Engineering
   Or
   A Post-Graduate degree in Mathematics / Physics /Electronics/Statistics or M C A. with Ph.D. degree in Computer Science.
   (ii) Ten years teaching/research experience (relaxable in the case of a candidate with outstanding merit), including atleast two years as a Reader in Computer Science.

2. **Professor of Pharmaceutical Sciences**

A Scholar of eminence in the field of Pharmaceutical Sciences. Independent published work of high standard. Teaching/Guiding Research/Industrial/professional experience for a considerable period desirable.

3. **Professor of Dr. Ambedkar Chair**

An eminent scholar with established reputation, who has made an outstanding contribution to Constitutional Law.

4 **Professors of Jawahar Lal Nehru Chair & Sir Chottu Ram Chair**

An outstanding scholar with established reputation who has made a significant contribution to knowledge. Those with a background in any of the Social Science will be eligible to apply for the position.

5. **Reader of Pharmaceutical Sciences**

Good academic record with first or high second Class Master's Degree in Pharmacy with Doctor's Degree or equivalent published work. Independent published work (in addition to the published work mentioned above) with at least 8 years' teaching/Guiding Research/Industrial/Professional experience essential.

6. **Lecturer of Pharmaceutical Sciences**

Essential : Consistently good Academic record with a first or high second class (B+) Master's degree or an equivalent Degree of a Foreign University in Pharmacy.

Desirable : (in order of preference)
(i) A Doctor's Degree/Evidence of research work or equivalent standard in Pharmacy.
(ii) Teaching experience of Degree/Post-graduate classes.

Provided that if a teacher is not a Ph.D. at the time of his/her appointment and does not qualify himself/herself for the award of a Ph.D. Degree from a recognised University in the subject which is being taught by him/her within the prescribed time/limit he/she shall not be entitled to any future increments beyond the stage of Rs. 3400/- till such time he/she fulfils the above mentioned requirements.

7. **Directorate of Correspondence Courses—Director**

Professor's qualifications with some experience of handling Correspondence Courses.

8. **Co-ordinator of Correspondence Courses**

As prescribed for the appointment of Principal in a College of Education. Person with sufficient administrative experience in educational institution(s) or a retired Principal of a College of Education will be preferred.

Non-Teaching Posts

9. **Dean, College Development Council**

Professor's qualifications.

10. **Key Punch Operator**

High School.

Special training in Key Punch operation necessary.

U G C. qualifications and pay-scales. Other allowances and benefits of Contributory Provident Fund admissible as per University rules. Higher start admissible in deserving cases. Knowledge of Hindi essential.

Reservation for Ex-servicemen B.C./S.C./S T. candidates as per rules. However, where the candidates under reserved categories are not available, the posts will be filled from amongst the general category's candidates.

Applications are to be submitted on the form prescribed for Class 'A' Officers alongwith attested testimonials and Crossed Postal Orders for Rs. 10/- drawn in favour of the Chief Accounts Officer, M.D. University, Rohtak, payable at the Post Office, Rohtak. Applications (through proper channel from those in employment) complete in all respects should reach the Asstt. Registrar (Estt.) (teaching), M.D. University, Rohtak by 11.6.90. Incomplete applications or applications received after the expiry of last date are liable to be rejected. The application forms can be had from the Press Manager, M.D. University, Rohtak on payment of Rs. 2/- at the counter and Rs. 3/- by ordinary post.

Note

(i) The applications shall be screened by the Committee to be appointed by the Vice-Chancellor. The Screening Committee will be competent to screen applicants and classify them on the basis of qualifications and experience and call for interview only the selected candidates.
(ii) It shall not be obligatory on the part of the University to call for interview every candidate who possesses the essential qualifications.
(iii) Number of posts may change.
(iv) It shall be open to the University to consider the names of distinguished person(s), who may not have applied, for the posts of Professors and Director, Correspondence Courses, on the basis of bio-data.
(v) It is not necessary to fill any/all of the advertised vacancies. Recruitments shall be need based and the advertisement is no commitment. Canvassing will be disqualification.

K S Sangwan
REGISTRAR

BANASTHALI VIDYAPITH

(Deemed to be University)

Application are invited for the following posts:

Faculty of Fine Arts	*Post*	*No. of Vacancy*	*Specialization*
MUSIC	Lecturer	1	Vocal/Instrumental
PAINTING	Reader	1	Aesthetics
DANCE & DRAMATICS	Reader	1	Kathak/Bharat Natyam/ Manipuri
TEXTILE DESIGNING	Lecturer	1	Printing
Faculty of Humanities			
HINDI	Lecturer	1	(Temp.)
ENGLISH	Reader	1	
	Lecturer	1	(Language Teaching)
SANSKRIT	Lecturer	1	(Temp.)
Faculty of Social Science			
ECONOMICS	Lecturer	1	
POLITICAL SCIENCE	Lecturer	1	
FOUNDATION COURSES	Lecturers	2	(History/Sociology)
Faculty of Science			
CHEMISTRY	Lecturer	1	Analytical
MATHEMATICS & STATISTICS	Lecturers	2	One each in Statistics & Mathematics.
ELECTRONICS	Readers	1	
	Lecturers	2	
Faculty of Education			
PHYSICAL EDUCATION	Lecturer	1	
Department of Adult & Continuing Education			
	Co-ordinator	1	
	Project Officer	2	One each in Adult & Continuing Education and Population Education.

Qualification: AS RECOMMENDED BY UNIVERSITY GRANTS COMMISSION.

Pay-Scales:

Readers & Co-ordinator:
Rs. 3700-125-4950-150-5700.
Lecturers & Project Officer:
Rs. 2200-75-2800-100-4000.

Dearness Allowance, Contributory Provident Fund, Gratuity-cum-Insurance benefits as per Vidyapith rules.

WOMEN PREFERRED

Notes:

1. **Teacher must become habitual wearer of KHADI on appointment.**
2. Selection Committee may recommend higher start in exceptional cases on merit.
3. The Vidyapith reserves the right to increase or decrease the number of vacancies or not to fill-up any post advertised.
4. Vidyapith will contribute towards travel assistance upto IInd class one side shortest route fare for all candidates appearing at interview.

Applications on prescribed forms must reach The Secretary, Banasthali Vidyapith P.O. Banasthali Vidyapith (Rajasthan) 304022 by **15.6.1990.** Forms can be obtained by sending self-addressed stamped envelope 16x23 cm size with Rs. 3.00 stamps or Rs. 8.00 stamps for registered post and postal order of Rs. 5/- in favour of Secretary, Banasthali Vidyapith. No. 4/90.

UNIVERSITY COLLEGE OF ENGINEERING

BURLA, SAMBALPUR-768019, ORISSA

ADVERTISEMENT

No. UCE/265/1/90/Estt. **Dated: 28.4.1990**

Applications are invited in the prescribed form for the following teaching posts **so as to reach the Registrar, Sambalpur University, Jyoti Vihar, Burla, Sambalpur-768019, Orissa on or before 27th JUNE, 1990.**

Department	*Number of Posts*		
	Professor	*Reader*	*Lecturer*
1. Civil Engineering	One	—	Three
2. Electrical Engg.	One	One	Four
3. Electronics and Tele-Communication Engg.	One	Three	Four
4. Mechanical Engg.	Two	One	Three
5. Physics	One	—	—

Pay Scales (As per AICTE norms):
Professor: Rs. 4500-7300/-
Reader: Rs. 3700-5700/-
Lecturer: Rs. 2200-4000/-

The prescribed application forms and full details regarding terms and conditions, qualifications and experience etc. can be obtained from the University office in person on any working day on cash payment of Rs. 25/- (Rupees Twenty Five) only (Rs. 6.25 for SC/ST candidates) or on requisition accompanied by (i) Bank Draft of Rs. 25/- (Rs. 6.25 for SC/ST candidates) drawn in favour of Comptroller of Finance, Sambalpur University, payable at State Bank of India, Burla OR United Commercial Bank, Katapali. **Drafts of any other Bank will not be entertained.** (ii) A self-addressed envelope (25 cmx10 cm) affixing postage stamp worth Rs. 9.00 superscribed on the cover "APPLICATION FORM FOR TEACHING POSTS, UCE, BURLA".

Candidates from abroad can apply on plain paper furnishing curriculum vitae and experience with supporting documents. Seven sets of bio-data are required. Such candidates may be considered in absentia if required by them.

Lecturers may be appointed against lien vacancies.

The University will adopt appropriate reservation policy for the post of Lecturers. SC/ST candidates found suitable for the post of Lecturers will be preferred.

All correspondence are to be made by designation only and not by name to the Registrar, Sambalpur University, Jyoti Vihar, Burla, Sambalpur-768019, Orissa.

By Order of the Syndicate
Sd/- S. Prusty
PRINCIPAL

OSMANIA UNIVERSITY

HYDERABAD-500 007 (A.P.)

Advt. No. 2/90 **Dated: 5th May, 1990**

Applications in the prescribed form together with the registration fee of Rs. 10/- payable through IPO/Demand Draft (M.O. is not acceptable) drawn in favour of the Registrar, Osmania University, Hyderabad-500 007, are invited for the following posts at Academic Staff College, Osmania University, so as to reach the undersigned in person or by post on or before **28-5-1990.**

Reader .,.. One.
Lecturer .... One (consequential, if any).

The posts are temporary and are tenable upto 31.3.1991.

QUALIFICATIONS:

For the Post of Reader:

(i) Good academic record (B+ or not less than 55% of marks) with Doctoral Degree in the Faculty of Arts, Social Science, Commerce, Science or Education or equivalent published work. Evidence of being actively engaged in (a) Research or (b) Innovation of teaching methods or (c) Production of teaching material.

(ii) About five years experience of teaching and/or research provided that at least three years are as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

DESIRABLE

(i) Must have proven organisational abilities in terms of organising Seminars, Symposia and Workshops of academic nature.

(ii) Must be capable of identifying Resource persons in different areas, and be able to correspond with them.

For the Post of Lecturer:

Master's Degree in the Faculty of Arts, Social Science, Commerce, Science or Education with at least 55% or its equivalent grade and good academic record.

NOTE:

1. Only those candidates who besides fulfilling the minimum academic qualifications prescribed for the post of Lecturer, have qualified in a comprehensive test specially conducted for the purpose by the U.G.C., New Delhi will be eligible for appointment of Lecturer.
2. The candidates who have already qualified JRF examinations conducted by the UGC/CSIR and those who are already holding Ph.D. and M.Phil degrees and those who will be obtaining such degrees upto December 1992 and December 1990 respectively, will stand exempted from appearing in the above eligibility test for recruitment of Lecturers.

DESIRABLE

(i) Must have at least five years experience in organising Workshops/Seminars/Symposia of All India Character.

(ii) Must be able to handle correspondence independently.

(iii) Must be able to write reports independently.

(iv) Familiarity with Computer-based data storage and retrieval.

PAY SCALES:

Reader ... Rs. 3700-125-4950-150-5700
Lecturer ... Rs. 2200-75-2800-100-4000

AGE:

Reader ... Not above 40 years.
Lecturer ... Not above 35 years.

NOTE:

(i) Age limit does not apply to the employees of this University.

(ii) Relaxation in age to the extent of five years shall be granted to the candidates belonging to Scheduled Caste, Scheduled Tribe and Backward Classes.

(iii) Relaxation in age to the extent of five years shall also be granted to the teachers who have put in at least five years of service in any of the college affiliated to the Osmania University.

RESERVATIONS: Applicable as per Roster System.

Application forms can be had from the Director, Department of University Press and Publications, Osmania University, Hyderabad-7, on payment of Rs. 10/- in person or by IPO/Demand Draft together with the postal charges for Ordinary/Registered Post made payable to the Director, and by sending a self-addressed envelope of 14 1/4x26 1/2 Cms.

REGISTRAR

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI-110 067

Advt. No. A&E-II/5/90

Applications are invited for the following posts:

(1) **Professional Assistant** (Reserved for SC) (Rs. 1640-2900): EQ: Good Second class M.A./M.Sc./M.Com. Degree with a Degree in Library Science. OR Good Second Class B.A./B.Sc./B.Com. Degree; with a degree in Library Science and working experience of 4 years in reputed Library.

(2) **Technical Assistant** (Reserved for SC) (Rs. 1400-2300): EQ: (a) Second class Bachelor's degree in Statistics/Mathematics/Economics; (b) Familiarity with Dbase III Lotus 1,2,3 and Word Star Package; (c) Some knowledge of FORTRAN Language; (d) Familiarity with operating systems such as CP/M and MS-DOS. Job Requirements: (a) to operate the HCL Work Horse-II system; (b) to guide students in data processing operations; (c) to assist teachers/students in using the P.Cs for Word Processing purposes.

(3) **Statistical Assistant** (Rs. 1400-2300): EQ: (a) A good second class M.A. in Statistics; (b) knowledge of data collection methods, analysis; and (c) Record Keeping.

(4) **Cartographic Assistant** (Reserved for ST) (Rs. 1400-2300): EQ: (a) Master's degree in Geography with good percentage and Diploma in Cartography; (b) Ability to plan and draw maps, illustrations and help the students in planning and making of maps; (c) preferably with some experience in drawing maps and computing the data necessary for maps.

Application forms alongwith necessary details may be obtained free of cost in person or by sending a self-addressed envelope (23 cmx10 cm) duly stamped to the Deputy Registrar (Aca.&Estt.), Room No. 204-B, Administrative Block, Jawaharlal Nehru University, New Delhi-110067 The applications in prescribed form, complete in all respect, duly forwarded by the competent authority (for those in service) should reach this University latest by **30th May, 1990.**

Abbreviations:
EQ-Essential Qualifications,
DQ-Desirable Qualifications.

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI-110 067

Advt. No. A&E-II/4/90

Applications are invited for the post of Assistant Professor in Bio-Chemical Engineering (one) in the Special Centre for Biotechnology of the University.

Essential Qualifications: B.E./B.Tech in Chemical Engineering/Biochemical Engineering/Fermentation Technology with atleast 55% marks or its equivalent grade and good academic record.

Desirable Qualifications: Ph.D. in Biochemical Engineering/Fermentation Technology.

Scale of Pay: Rs. 2200-4000.

15% and 7.5% of the posts of Assistant Professors are reserved for SC and ST candidates respectively. Any of the qualifications, experience may be relaxed at the discretion of the University.

Application forms may be obtained free of cost in person or by sending a self-addressed envelope (23 cmx10 cm) duly stamped to the Deputy Registrar (A&E-II), Room No. 204-B, Administrative Block, Jawaharlal Nehru University, New Delhi-110067. The applications in the prescribed form, complete in all respect duly forwarded by the competent authority (for those in service) should reach this University latest by **24th May, 1990.**

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University News

MONDAY, MAY 21, 1990

Rs. 2.50

Shri B. Satya Narain Reddy, Governor of Uttar Pradesh, delivering the convocation address at the Narendra Deva University of Agriculture and Technology, Faizabad. On his right is Dr. U.C. Upadhyay, Vice-Chancellor of the University.

ALL INDIA INSTITUTE OF SPEECH & HEARING
MYSORE-6

ADMISSION NOTICE

Applications are invited for admission to 3 years B.Sc. and 2 year M.Sc. Speech and Hearing course for the academic year 1990-91.

Prescribed application forms, together with the prospectus can be had from the Institute on payment of Rs. 12/- (Rs. 7/- in case of SC/ST) in cash or by Money Order/Indian Postal Order drawn in the name of the Director, All India Institute of Speech and Hearing, Mysore-570 006.

B.Sc. Speech & Hearing — Qualification for admission:

Pre-University examination or equivalent of any recognised University/Board with the following subjects with atleast 50% marks in the optional subjects at the qualifying examination in these subjects (45% for SC/ST).

(a) Physics (b) Chemistry (c) Mathematics	OR	(a) Physics (b) Chemistry (c) Biology

The candidates with either PCM or PCB with or without other subjects are eligible.

The marks obtained in PCM/PCB will be the criteria for selection. In the case of candidates who offer PCMB, the higher marks in PCM/PCB combination will be considered.

Total seats available: 33. Four seats reserved for SC and two seats for ST. Three seats are reserved for foreign nationals. The other seats are allocated on merit and zonal basis.

M.Sc. Speech & Hearing — Qualification for admission:

B.Sc. (Speech & Hearing) or equivalent (i.e. B.Sc. (A.S.T.) Number of seats: 23. Three seats reserved for SC and one seat for ST. Three seats are reserved for in-service candidates, selection among whom will be on the basis of merit.

NOTE:

1. To qualify as an inservice candidate, a candidate
   (a) Should have put in 3 years paid professional service as a Speech and Hearing specialist in a government Institute/Hospital.
   (b) Should have obtained atleast 45% in aggregate in the B.Sc. Course in Speech and Hearing.
   (c) Should be below 28 years of age.
2. Any vacancy in the inservice quota will be filled from the general pool on the basis of merit.

Stipend:

All the selected candidates (except foreign nationals) will get a stipend @ Rs. 250/- per month for B.Sc. and Rs. 400/- per month for M.Sc., for nine months in an academic year.

The medium of instruction will be English.

Last date for receipt of completed applications at the Institute:

(a) B.Sc.	...	12th June, 1990
(b) M.Sc.	...	16th June, 1990

Limited hostel accommodation is available.

DIRECTOR I/

3 1 MAY 1990

UNIVERSITY
NEWS

VOL. XXVIII MAY 21
No. 21 1990
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A Weekly Chronicle of Higher Education published by the Association of Indian Universities

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Editor :
SUTINDER SINGH

Higher Education in India
Structural and Other Problems

Amrik Singh*

Education as a discipline does not receive that kind of close and rigorous attention that it ought to receive. Even amongst the social sciences, it is usually perceived as a poor relation. While there are hundreds and thousands of persons working in disciplines like economics, history, political science, sociology and so on, those working in the field of education are so few as to be enumerated at one go.

One reason for it is the fact that for over a century, education has been equated with teacher training. While training of teachers at the school level is an exceedingly important dimension of education, there is much more to education than that. While teacher training leans mainly upon psychology, philosophy and the principles of pedagogy, education, particularly at the level of policy formulation, goes much beyond that. It has to of necessity draw upon the body of knowledge generated in the fields of economics, sociology, management, public administration and several other related disciplines.

In developed countries, education is taken to be one of the more important disciplines of study. The situation in our country however is exceptionally unsatisfactory from this point of view. In a sense, this is baffling. On the one hand, we wish to develop. On the other hand, we are unwilling to use all those tools of understanding which, without exaggeration, are indispensable for development. Understanding education, in the comprehensive sense of the word, is in my opinion a prerequisite for development. It is only after we have understood the role of education in development, integrated this understanding with the understanding of the other issues which have a bearing on economic growth, social stratification and national integration that we would really and properly grapple with the problems of development.

Having said that, however, I wish to narrow the field of my observations to higher education. Over the years, the higher education sector has expanded in a somewhat ad hoc and irrational way. All kinds of problems have arisen. The ones I propose to take up are : (a) the middle class bias in education, (b) the Centre-State partnership in the field of education, (c) the artificial division between teaching and research in the universities and outside, and (d) the all-pervasive corruption that has crept into the university system

II

Middle Class Bias

Out of approximately four million students at the college and university level today, only 10-11 per cent are engaged in postgraduate teaching and research; the rest of them are enrolled at the undergraduate level. One has only to look at the data is respect of the growth of enrolment over the decades to see that while there has been growth all along the line, the bulk of it has been at the undergraduate level. In fact, but for the change in the basis of calculation in the mid 70's this picture would have been even more adverse. Around that time, the +2 system was introduced and those enrolled at that level were taken out of the total. Till then, schooling had been of the duration of 11 years and then it became 12 years.

[Based on Dr. Waheeduddin Khan Memorial Lecture delivered at the Centre for Economic and Social Studies, Hyderabad on 9 April, 1990].

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A particular comment in the body of the report is equally relevant and is reproduced below :

> The affiliated colleges account for 83.2 per cent of the total enrolment. The percentage of students in affiliated colleges is as high as 88.0 at the undergraduate stage. The affiliated colleges also account for 53.5 per cent of the enrolment at the postgraduate level and 13.2 per cent of research enrolment.

In precise terms, the following figures illustrate the point made above :

Stage	University Departments	University Colleges	Affiliated Colleges	Total	Percentage in Affiliated Colleges		
					1978-79	1977-78	1976-77
Graduate	1,49,743	1,25,635	20,19,407	22,94,785	88.0	88.8	89.7
Postgraduate	1,10,385	5,739	1,33,404	2,49,528	53.5	53.9	53.5
Research	25,379	716	3,983	30,078	13.2	14.4	11.2
Diploma/ Certificate	21,730	713	21,394	43,837	48.8	55.2	58.7
Total	3,07,237	1,32,803	21,78,188	26,18,228	83.2	84.2	85.1

In terms of figures the statement made above may be illustrated from the Table given below. It is taken from the UGC Report of 1978-79 :

Year	Number of Universities	Number of Colleges	Number of Students
1969-70	79+10 institutions deemed to be universities	3,297	17,92,780
1970-71	84+9 institutions deemed to be universities	3,604	19,53,700
1971-72	86+9 institutions deemed to be universities	3,896	20,65,041
1972-73	90+9 institutions deemed to be universities	4,158	21,68,107
1973-74	95+9 institutions deemed to be universities	4,308	22,34,385
1974-75	102+9 institutions deemed to be universities	4,170	23,66,541
1975-76	102+9 institutions deemed to be universities	4,272	24,26,100
1976-77	105+10 institutions deemed to be universities	4,317	24,31,563
1977-78	105+10 institutions deemed to be universities	4,375	25,64,972
1978-79	108+10 institutions deemed to be universities	4,460	26,18,228

Note : The number of colleges from 1974-75 onwards excludes Junior Colleges and Colleges offering diploma/certificate course. Hence the change in trend.

It should require no further evidence to show that but for this shift in the basis of calculation in the mid 70's the enrolment figures at the college and university level would have been much higher. What this indicates is not that the problem has disappeared. The problem is very much there; only its magnitude has been played down and the problem therefore does not look as daunting as it really is.

What is the nature of the problem ? Briefly speaking, it is the middle class bias in education. Ever since the middle of the 19th century when the structure of our economy was colonial, the model presented all throughout has been that India must industrilise herself. Whether it was so intended or not, it has been taken to mean that it is only when India gets industrialised that she would be said to have made progress.

This point of view was projected forcefully in the Bombay Plan drawn up by some of the leading industrialists of the country before World War II. After the transfer of power in 1947 and the establishment of [the Planning Commission, the whole thing was put on a formal basis. Real planning however started with the formulation of the Second Five Year Plan. The influence of the Russian model was unmistakably strong in the manner in which the Plan was drawn up. Mahalanobis who drew up this Plan however had a much more complex structure of thought than came to be embodied in the various successive Plans. That however is not the point at issue.

Nor is this the occasion to go into a discussion of the various Plans or the planning process except to call attention to two things. One was the neglect of Gandhian ideas in the kind of planning that was initiated and the other is the return of those ideas, as should be evident form the thinking as well as some of the recent developments since the last parliamentary election. There is a feeling that serious imbalances have developed in the economy because of the faulty policies followed. The balance therefore needs to be redressed. The current talk about diverting 50 per cent of development expenditure into the rural sector is a case in point.

What we here are concerned with is the fact that education, as imparted all these years, has provided under-pinning to organised industry and all that goes with it. When it comes to the development of the rural areas, the kind of education that is imparted touches it only at the periphery and seldom directly. So much so that even unorganised industry does not benefit from what passes for education today. In order to illustrate this point we have to only to look at the distinctive approaches followed in respect of technical and vocational education.

Technical education is meant to provide trained manpower to organised industry and those activities of the government where technical expertise is required. Vocational education, on the other hand, has a more modest purpose. If such people wish to go into government service, the best that they can do is to go into municipal corporations and so on. For the rest, they are employed at lower and middle levels in organised industy, whereas they are required, most of all, in the unorganised industry. But the system of education hardly takes their needs and requirements into account and therefore it is a hit and miss affair. To put it another way, if unorganised industry is not doing better today than it could have, this is largely because the system of vacational education, such as it exists, has not risen to the challenge.

Why should that be so ? The answer is writ large both in respect of the structures, social as well as economic, that we have evolved and the ideas that govern their evolution and growth. A large number of people think that it is organised industry alone which is a proof of progress and what happens elsewhere is not important. The experience of Punjab and Haryana in respect of the focus on agricultural production is overlooked. Also overlooked is the fact that four fifth of India's population lives in the rural areas. Unless their life is improved, what is called progress will at best remain partial and inadequate.

This explains, amongst other things, why education is still looked upon as the gateway to a good job, preferably in the government. This also explains why elementary education has not received the kind of attention it should have. The model even today is essentially the same as had got projected in the middle of the 19th century. Some changes have no doubt taken place but those have not changed our outlook nor transformed the basic lineaments of our economy.

In this connection, it may not be out of place to refer to Entry 65 of the Seventh Schedule of our Constitution in which the powers of the Union have been enumerated. Vocational education is one of those powers that the Centre has. Usually it is Entry 66 of the Schedule which is commonly referred to. This is because it is Entry 66 in terms of which the UGC has been constituted. But Entry 65 is no less important; it empowers the Union to establish agencies and institutions for professional, vocational or technical training.

It is in pursuance of this particular Entry that the All India Council of Technical Education (AICTE) has been established and Vocational education is included in its charter of work. Despite this Entry in the constitution, what has been done in respect of vocational education leaves a lot to be desired. One reason for this situation is that the states too are involved in vocational education. Apart from the statutory power that they have in this regard, the country being as large as it is, the Union obviously cannot involve itself in vocational education beyond a point, The bulk of the responsibility therefore devolves on the states, and they do not discharge this obligation to the extent that they should.

III

Centre-State Relations

In statutory terms, education including university education, was originally in the State List. In terms of the 42nd Amendment, education was brought on the Concurrent List. That happened in 1976 but it needs to be added that this was more formal than real. In the years that have passed since then, the Centre has not initiated any follow up action and education continues to be managed in the way it was managed before 1976.

This is in contrast to what was done, for example, in regard to forests. Because of the manner in which the ecology of the country was being destroyed, forests too were put on the Concurrent List. What is more, soon after follow up legislation was also adopted. It is another matter that it was not enforced. As far as the legislative powers are concerned, those were assumed by the Centre without much loss of time. In the case of education even that has not been done.

When trees are cut and such other things happen, anybody can see what is happening. If millions of people are kept illiterate and nothing is done to remove their ignorance and hunger, nobody is hit in the eye. This is what we have always lived with; that seems to be the general approach.

Coming to issues which confront us directly, we are concerned with higher and professional education. The two central agencies established by the Centre for this purpose are the UGC and the AICTE. The latter body was given a statutory basis only in 1988. It has been in existence however for a much longer period. In fact it ante-dates the UGC by a decade or so. What it accomplished in its earlier years was perhaps more positive than what it has been able to do of late. At any rate its performance since it became a statutory body does not inspire confidence.

One mistake made in this regard was not to detach it from the government and to make the Union Minister for Education its Chairman, at least to start with. Instead of becoming a professional body, it became an extension of the government. Some of the things done in the last couple of years do not bring any credit to it and the responsibility in each case was that of the Chairman rather than the Council as a whole.

Without pursuing this issue any further, it is the non-performance of the UGC which is a cause for deep disquiet. This is not the place to go into who the UGC has been performing. One random quotation taken from the 1977 review of the UGC appointed by the Department of Education speaks for itself.

> "Barring a few exceptions, the committee functioned in a leisurely fashion. The committee on standards took four years to produce its report. Several panels on examination reform worked for more than a decade and it was the working group set up by the Ministry of Education in 1971 which produced a Plan of Action, which was endorsed by the UGC and circulated to universities in 1973 for implementation. In mid sixties some subjects panels were set up which, we were told, hardly met."

This is one aspect of the problem. An equally important aspect however is the fact that the Centre has never given much financial support to the UGC. During the last decade or so, its budget has not kept pace with the demands made upon it. The magnitude of the problem becomes apparent when we contrast the allocation made to scientific research during this period. All this was happening in a situation where the number of universities and colleges has been going up from year to year. If the UGC therefore complains about not being given all the resources that it needs, its complaint is not without foundation.

Having presented both sides of the picture however it also needs to be said that a good deal of the explaination is the gross underperformance of the UGC in the manner in which it has been functioning. Its responsibility is twofold; one is to provide maintenance and development grants to Central universities and secondly to provide development grants to State universities. By not being rigorous enough in respect of both these responsibilities, the UGC has allowed a situation to arise in which even the limited funds at its disposal are not used as well as they can be used.

Nothing illustrates this somewhat inverted order of priorities more than the manner in which the colleges are dealt with. Something between one fourth and one third of UGC support is extended to colleges and that is as it should be. But how the UGC deals with colleges is a matter that cannot bear too close a scrutiny. In the case of the universities, the UGC has some idea about each one of them. For one thing, their number is still somewhat manageable and, for another, the UGC, despite all the handicaps that it has, manages to keep in touch with each one of them in one way or another. When it comes to colleges, they are much too many and much too widely dispersed all over the country. In consequence what happens in colleges is not all that well known to the UGC.

While some of the programmes like COSIP and COHSIP have done some good to colleges and are well funded, there are quite a few programmes which cannot be run properly in the absence of that first hand information which the funding authority should have. Enterprising principles make trips to Delhi, lobby the officials concerned and get those marginal sums of money which any college on the approved list is entitled to get. There are all kinds of stories about how these deals are negotiated. In certain cases under the table transactions are alleged. In certain other cases, the visiting principals are asked to meet officials at home and so on.

Most of these things are known to the UGC bosses. But they are unable to take care of the problem because of the manner in which things are organised. Why should everything be decided from Delhi ? Why is it not possible to ask State governments to scrutinise and assess the plans for development of colleges and make appropriate recommendations ? As of today, the states do not possess any such machinery for processing these cases. But is it not desirable that they should establish such a machinery and, furthermore, planning in respect of colleges is done at the state level rather than at the Central level ?

The State Councils of Higher Education as recommended by the 1986 Policy, were expected to perform this role. While Andhra took early initiative in setting up such a Council, its performance has not been upto the expectations. To refer to the need for such State Councils in the city of Hyderabad might look like carrying coal to Newcastle. But in principle nobody can disagree with the need for such a Council in each state. This is because the unit of operation in our country is the State Government or the Union Territory. What is more, the bulk of funding is provided by them.

When one looks at their machinery for attending to the demands of higher education, one is immediately struck by the fact that whatever organizational structure they have is a carryover of what used to exist in good, old British days. Even though the scale of operations has gone up 30-40 times since 1947, the State governments have not reorganised their machinery in any significant manner.

While the issue under discussion is the Centre-State relations in higher education, one cannot but deplore the gross inattention to higher education at the State level. Quite a number of states have a Director of Higher Education, another for Technical Education and sometimes a third one for Medical Education. At the secretarial level however, everything is overcrowded and jumbled up. The Secretary for Education is saddled with all kinds of responsibilities, including having to deal with scores and scores of visitors every day. Therefore everything, including higher education, gets neglected.

Is it not odd that a department, which has one-fiftieth of the budgetary allocation as compared to what Education has, is looked after by a Secretary as much as Education is ? This is not to say that education should necessarily have more than one Secretary. But surely it should be possible to distribute work relating to education in such a manner that at the policy making level there is much less pressure on the Secretary of the department than is encountered today.

The Andhra move to detach post-matriculation education from the Department of Education was a step in the right direction in that sense. It is a matter of regret that the experiment has not got off the ground and people are beginning to have doubts in regard to its wisdom. The failure of a particular experiment, if one may put it that way, is not enough reason to question its usefulness. It is time that similar Councils were established in other states as well. In course of time they can take over quite a few of those functions which are not being attended to as also perform the functions allocated to them much more effectively than before.

The UGC ought to promote the establishment of such Councils for it would then be relieved of a lot of unnecessary baggage. The UGC however is not pressing hard enough in this direction because presumably, by doing so, it would render some of its staff surplus and the UGC does not know how to deal with that problem.

In regard to the basic issue of Centre-State relationship in the field of higher education, what needs to be ensured is much better coordination between the two. This coordination would imply much more professional functioning of the central agencies and a much more effective organisation of the state level bodies which are entrusted with the job of supervision and superintendence. It is not possible to go into further details except to underline the fact that the attempt to overcentralise has not succeeded nor will it succeed. What needs to be ensured is decentralisation along with much more meaningful coordination.

IV

Teaching and Research in Universities and Outside

However, what has crippled the university structure much more decisively than anything else is the blurring of distinction between undergraduate and postgraduate teaching and, no less important, the development of a parallel research sector outside the universities. Even a cursory look at the data reveals two unmistakeable trends. One is the predominance of the undergraduate sector; it is almost 90 per cent of the total strength. The second relates to approximately half the postgraduate students being taught in colleges as distinct from universities.

This is not unusual. In several countries colleges also do what the universities do; that is to instruct at the postgraduate level, in other words it is not the label which is important. What is important is the standards of performance that they maintain. When a college does postgraduate work, it is different from a university mainly in the sense that it is a smaller institution as compared to a university. In other words, what is different is the scale of operations and not their functioning. However there can be a difference of coverage as well. A university by definition embraces the universe of knowledge where as a college does not have to do that.

In our situation, a college is essentially an institution with its focus on undergraduate teaching. Till about the mid 50's, only a few colleges had postgraduate departments and usually in one or two subjects. But once the UGC recommended different scales of pay for those teaching undergraduate as distinct from postgraduate students, there was a sudden spurt in the number of postgraduate colleges. This started happening around the Third Plan period. In order to be able to get a higher scale of pay, anyone who had initiative, whether the principal of a college or an enterprising teacher, managed to have postgraduate departments in the college.

This whole trend of developments was however overtaken by the 1973 decision to give the same scale of pay to college and university teachers. It should not be necessary to go into the details of how and why it happened; that has been analysed on several occasions by several people. Of course one compelling factor was the unspeakably low scales of pay in some of the colleges. But the point which needs to be underlined is that the starting point for revision of scales of pay was not academic but extra academic. That has led to a situation which manifested itself, more clearly than could have been anticipated, in the 1987 all India strike conducted by the AIFUCTO.

What that strike demonstrated was the fact that there was an inherent contradiction between the interests of undergraduate and postgraduate teachers. That is why when the agreement was signed with the government, it was denounced by some of those connected with the universities and welcomed by most of the college teachers.

There is more to it however. The undergraduate teachers outnumber the postgraduate teachers so vastly that any reversal of the 1973 decision of parity between the two wings would be resisted strongly. It is always difficult to take away something once it has been conceded. Perhaps the only way in which this distinction can now be reintroduced, so to speak, is when the next revision of scales of pay takes place. That would take us towards the close of the current decade and for all practical purposes therefore we are stuck with a situation which, as I see it, is not in the interest of the university system.

Coupled with this fact is the 1983 decision forced upon the UGC by the college teachers of the University of Delhi to give automatic promotion to everyone, whether in a university or a college. In course of time it got extended to almost all universities. When, in the 1987 revision, this trend was sought to be reversed, it met with only a partial success. The notion of everyone who enters teaching being given a couple of promotions in the course of his career has got so firmly implanted in the minds of most people that it has not been possible to move away from it except marginally. That like several other professions, as for instance soldiering teaching has to have its own ethos and its own criteria of performance is something that strikes most people as outlandish and perhaps inapplicable, to put it no more strongly.

The number of undergraduate students has been increasing over the years so that more and more colleges and universities came to be established. Approximately half the university level institutions today are affiliating in character. Each one of them therefore has to look after colleges and conduct examinations and do all those things that have to be done when colleges are spread over a certain geographical area. Some kind of a system has had to be evolved to keep the colleges in line. This in turn has exerted all kinds of indirect pressures upon universities. In managerial terms, most universities have found it difficult to cope with the pressure of numbers. In any case, over the years, the examination system has become less reliable and more prone to inefficiency and corruption. In consequence the credibility of the university system has been declining.

While this decline is comparatively recent, the trend in favour of the migration of research from the universities had got underway even earlier. This does not refer to the establishment either of the CSIR or the Tata Institute of Fundamental Research. Such institutions are to be found in almost every country. Research institutes being established and working on their own steam is not an uncommon phenomenon. What happened in these two cases or even earlier, say, at the time of the establishment of the Indian Institute of Science, Bangalore, in the second decade of the century, were perfectly logical steps. But what started happening in the last couple of decades was some kind of a reaction to the inability of the university system to cope with the demands of research and research organisations in a meaningful and effective manner.

One has only to look at the string of research institutes established from the mid 50's onwards to see that most of them got established not entirely because there was a need for independent institutes but because the universities were unable to look after them as a normal part of their functioning. Nor could they accommodate them within the university structure. The establishment of the Department of Science and Technology and the Indian Council of Social Science Research in the 60's made it possible for government funding to be channelised in their favour in an organised way.

The two trends—growth in the number of undergraduate students and the migration of research outside the universities—in a way reinforced each other. Universities came to be identified with undergraduate and, to some extent, postgraduate work. As far as research was concerned, some of it was done within the universities, and a certain proportion of it was impressive also, but the overall trend could not be reversed. The UGC has been making heroic efforts to do so. But, given its financial constraints, it could not succeed beyond a point and the overall situation today is that research is by and large concentrated in institutions outside the universities and it is mainly teaching and some bit of research which is done in the universities.

Is this healthy for the university system ? One has only to ask the question and one knows that if universities have to stage a comeback one of these days, both these trends would have to be reversed. On the one hand, the focus would have to shift away from undergraduate teaching and, on the other hand, research would have to be promoted and fostered as a part of university functioning. This is however easier said than done. Two basic changes would have to be brought about if this objective is to be achieved.

To take up one of them (the promotion of research) first what the Centre has to do is to allocate funds in such a way that some part of what is now given to research institutions is diverted to universities. Even now several of these research bodies give project grants (something like 200 crores per year) to university teachers but this does not help either in the strengthening or the definition of the university system. Somebody would have to take a deeper view of the situation and allocate funds in such a way that the imbalances created over the years are redressed. It should not be necessary to provide many more details except to mention the following figures.

In the late 70's, 1978 to be precise, the UGC annual allocation was over 200 crores, both Plan and non-Plan. Currently it is in the neighbourhood of 550 crores. The outlay on scientific research around that time was 500 crores per year. Currently it is around 3,500 crores and it was proposed to double it in VIII Plan. With the priorities of the Plan now under reconsideration it is not possible to say what would eventually happen.

It is the other part of the policy dealing with the undergraduate population in college which is more difficult to implement. Students join college not because they are necessarily interested in pursuing higher education but because they have no other option. The focus on organised industry and urban development has made colleges and universities a handmaiden of that particular mode of development. What higher and professional education do is not calculated to subserve the interest of any other sector except the ones referred to above. No wonder it is the middle class (both upper and lower) which has been taking advantage of the higher system of education. Unorganised industry as well as the rural sector have remained singularly untouched by what is happening in the sector of higher and professional education.

This makes me reiterate what I have maintained for years i.e. higher education as it functions today is a victim of the strategy of development followed during the last four decades. This strategy has emphasised urban development and neglect of rural areas. Should some changes be brought about now as they well might be, what would start happening is that those who migrate from rural areas to towns and cities would not migrate in as large numbers as has been happening all this time. In other words, employment in rural areas would start growing and therefore the character of higher education would also have to undergo a change.

More precisely, it is vocationalisation at the higher secondary stage which would receive impetus and this in turn would reduce pressure on colleges. The number of students passing out has kept on increasing with the passage of years. More and more of them would now stop at the higher secondary stage and hopefully opt for vocational courses. This will happen only when there is market demand for their skills. If a new strategy is evolved, and one hopes it would be, in about three or four years the trends would start changing. Put another way, the number of students opting for vocationalisation would start going up and the number of those entering college somewhat aimlessly would start going down.

Should that happen and should this policy not be disturbed after it has been once launched, it is reasonable to hope that by the end of the 90's the overall percentage of those at the undergraduate level would come down to approximately two thirds of what it is today. Properly speaking it should go down further also but then any bit of further speculation would take us into the 21st century and it is difficult to anticipate with any degree of precision what would happen at that time.

What we need to do today is to reduce the intake of those going in for college education, assist in the retention of those at the higher secondary level and seek to restore that kind of balance as between undergraduate and postgraduate teaching which is desirable. Should this sequence of developments come to pass, it would also be the time to attend to the other problem of a differential wage between those engaged in undergraduate and postgraduate teaching.

V

The All Pervasive Corruption

Apart from the structural problems which have been discussed so far, there is one other thing which is a real, pressing problem and indeed is destroying the universities from within. This refers to corruption which is corroding the entire system. The sad part of it is that hardly anyone (teachers, principals, vice-chancellors, government officials, private managements, almost everyone except the students) is untouched by what is happening. I have pointedly excluded the students for one simple reason. While some of them are a party to the corruption that pervades higher education, the vast majority of them are totally innocent of it. The young are always honest and idealistic; it is only the rest of us who believe in the art of wheeling and dealing.

Those who get drawn into the network of corruption are sometimes young. But they are young only in years; in terms of outlook on life they have ceased to be young. Having tasted the blood once, they crave for prominence and publicity. In fact it is the older people who corrupt them. Most of them who are energetic and ambitious start off very well but then they get seduced by the lure for power. Once this happens there is no looking back for them and that is what explains, for the most part, the relative degeneration of student politics in India in recent years. However, it is not necessary to go into further details. What is more important is to discuss the role and conduct of those who are involved in education.

It should not be necessary to refer to the remorseless decline of what is called public morality during the last few decades. There are people around who can recall what it used to be before 1947. While most of them have got sucked into the vortex of corruption, a few of them, despite all kinds of pressures and temptations, retain their values. But they are in such a hopeless minority that the tone is set by those who have been affected by contemporary trends. This has happened in every walks of life, including education.

But, as I have argued elsewhere, integrity in education is a necessity and not a luxury. There are certain things where lack of integrity, however deplorable, can be lived with. In the case of education, integrity and good education are two sides of the same coin; they cannot be conceived of without each other. Perhaps an analogy would explain this point better.

Can we expect a doctor to be anything other than first rate ? What is at stake is the life of a human being. When the question is posed in this manner, we can understand what is being discussed. The doctor has to be both competent and professional and the drug has to be totally free of any kind of impurity. Then alone can we expect a patient to be cured of his illness.

What most of us do not understand in the case of education is that poor education is like slow poisoning. The individual concerned does not die but he fails to come up to his full potential. Education is nothing except helping an individual to grow to his full capacity and being aware of his capacities as well as his limitations. And this can be achieved only through competent and committed teaching.

For quite some decades now, we have lived with a situation where teachers do not teach and students do not learn. Instead the assumption on almost every body's part is that if somebody is to land a job, it would be more because he knows certain people and can pull a few wires and not because he knows his subject and possess the requisite degree of competence. That in consequence education has got devalued should not be a matter of surprise to any one. While it is not possible to go into the wider question of integrity in public life and services and such related matters, surely those are not the only reasons why the virus of corruption has been growing in the field of education.

Admissions, affiliations, appointments, promotions, examinations, and almost everything connected with education is afflicted by the virus of corruption. Hardly anything is done fairly or as it should be done. All kinds of questionable means are adopted in order to confer advantages on some and deprive others of the same. For one thing, there is keen competition for difficult—to get advantages, and, for another, the general atmosphere is such that our moral sensibilities have got blunted and almost each one of us becomes a party to some mean advantage or another. In my opinion, the most urgent problem that our university system is faced with today is how to combat corruption. Excessive politicization of most decision making in universities and colleges, including appointments, to key positions is a powerful contributory factor but that cannot explain everything.

Corruption can take various forms. To cut a class on some phony pretext is to earn one's wage without having done the job. But were a teacher to go into a classroom without having prepared his lecture, it is no less an act of corruption than absenting oneself from work. The thing to note in both cases is that something to which one was not entitled has been earned and corruption, if I may add is nothing else than to get, or even attempt to get, what one is not entitled to. This is by no means a precise definition. But as a working definition, one can be guided by this formulation without the fear of going astray or making wrong choices.

To talk in these terms today is regarded as naive and impractical. There is some truth in such a perception. At the same time one cannot overlook the fact that in every society there are phases of development and degeneration. In the phase of degeneration, such as we are passing through today, values are abandoned in favour of expediency and the rest follows.

However, whatever be the pressures and whatever the general state of affairs, some people always adhere to what they hold dear. The wide mass of people are neither idealistic nor criminally inclined but can go in either direction; currently they have begun to lean in the latter direction. In the absence of accountability, and this is a stage into which every society descends every now and then, a large number of people who would act otherwise tend to go along with the herd and resort to corrupt practices.

What I wish to contend however is that even in this phase of degeneration, a teacher cannot act like a trader. This is because a teacher, particularly at the higher and professional level, is also a professional. No one becomes a teacher till he goes through a prolonged period of training. He must acquire those skills which enable him to instruct others. Almost a decade and a half and sometimes more than that goes into the acquisition of those skills which prepare him for a career in teaching. Like a doctor or an engineer, a teacher too is a professional and professionalism has its own imperatives; one of them being a high level of awareness of the social dimensions of what he is doing.

This is only a way of saying that what has been said above is not a lament only over the fact of growing corruption in higher education but also a lament for the absence of professionalism. It was in this sense that integrity in education was referred to as a necessity and not a luxury. In plain words, a genuine teacher cannot afford to be anything other than a competent and committed teacher. If he departs from this ideal, he ceases to be a teacher.

It would not be inappropriate at this stage to refer to the rate of expansion in higher education and several related factors which are responsible for the undoubted absence of professionalism amongst college and university teachers. While the policies adopted by the governments—Central and States as well as the UGC—are without question responsible for many of the ills in the profession, it would be an act of over-simplification to hold only them responsible for what is happening. The teachers too are no less responsible for what is happening within the profession.

After all no one other than they themselves are responsible for what happens within the classroom or the laboratory and a good deal of what happens within the institution. Outside influences, however negative, cannot explain everything. As everyone knows, a meeting convened to consider the issue of salaries and perks will attract a large number of people but a meeting convened to consider an academic issue would not enthuse many people. This is an example of lack of professionalism.

Professionalism is weak or absent in the number of other professions too and it would not be correct to blame only the teachers for this deficiency. There is a difference however between the profession of teaching and other professions. Teaching, by definition, concerns other human beings. In a sense, it is the future of the young people which is at stake. How and in what manner they are instructed and shaped into the right kind of human beings will influence and, sometimes, decide the rest of their life and career. What teachers are required to do has long range implications therefore.

When the teaching job is not done as it should be done, the consequences do not get exhausted in a single act but stay with the individual and influence his outlook and conduct throughout his life. For teachers to be non-professional in their approach is therefore an issue which cannot be divorced from the social consequences of the job in which they are engaged.

I am of the view that while quite a few of the things referred to above, and several of them not referred to here, require to be done by those that have the power to do them, combating corruption is something that requires immediate attention. It has the potential of changing the ethos of work in which educational institutions operate. Secondly, this is also a plea for professionalism. A professional approach would mean better teaching and better teaching would mean better performance as also a cleaner atmosphere for work and functioning.

To put it simply, once a teacher has entered the classroom and closed the door behind him, it is for him to decide how he would perform. The students are in front of him and it is for him to give them his best or delude them into believing that what he is doing is the best that can be done. For the next hour or so he is his own unquestioned master.

It does not matter that his principal or head of the department is a nasty character or that someone else has been promoted and he was not promoted or that a legitimate request which he made has been turned down or even that he had a fight with a neighbour or his wife or her husband or somebody else before he came to the classroom and so on. In plain words, every kind of distraction can be put aside when he faces the class and it is for him then to determine how he would perform.

This is the essence of what constitutes teaching. It is because in our preoccupation with other things we forget this basic truth that so many things that ought not to happen do happen. Can we make sure that they do not happen ? Can we make sure that an individual facing a bunch of students performs to the best of his ability regardless of what is happening to him and around him ? □

TO OUR READERS

Knowledgeable and perceptive as they are, ou contributors must not necessarily be allowed to hav the last word. It is for you, the readers, to join issue with them. Our columns are as much open to you a to our contributors. Your communications should however, be brief and to the point.

Community and Junior Colleges in the United States

(Mrs.) Purnima Mathur*
S.S. Mathur**

. Introduction

The Community Colleges in the United States offer ducation and training beyond the high school, but f less than four years of duration. Their programs esemble what may be termed as Short term, extended, ost secondary education and training. Most of the rograms are of two years duration or shorter, but nere are also some going up to three years. There re well over 1200 such institutions in the United tates. They normally award two degrees: The ssociate of Arts (also, at times the Associate of cience) and the Associate of Applied Science. Addi- ionally, they award certificates and diplomas. They ange from almost purely academic institutions Junior Colleges, two-year University Centres) to lmost purely career-oriented institutions (technical/ ocational colleges and institutes). The great majority f them, however, are comprehensive institutions ommunity colleges). They also range from totally tate-controlled to locally-controlled private or hurch-related institutions. The regionally accredi- ed Junior Colleges and the Community Colleges are epresented by a society called the American Associa- on of Community and Junior Colleges (AACJC).

. A Junior College

The junior college is the oldest of the various pes of the American "two-year" post secondary stitutions. They came about at the turn of the entury and, originally, were the creations of univer- ties and public schools. The junior colleges empha- ze in their curriculum transfer of academic pro- ams. Students going to them are normally trans- rring to senior institutions (universities or four-year lleges) where they complete their baccalaureate egrees. Junior colleges usually award the Associate f Arts degree, after the successful completion of llegiate education equivalent to the first two years f university education. Junior colleges might also offer a limited number of career programs, especially in the business and health-related areas and they may award the Associate of Applied Science for those areas. A good number of the present junior-college-type institutions are privately owned, or church-related, or two-year university centers.

3. Organization of the Curriculum

Working under the direction of the appropriate administrative leaders, it is the responsibility of the teaching faculty and academic staff to design, monitor, and evaluate the specific associate degree programs offered by the institution. The process should involve consultation with others, both inside and outside the institution. The associate degree program links learning that has gone before with learning that will come after. Therefore, those concerned with framing the associate degree requirements must not approach the task in isolation. Full attention must be given to continuity in learning, as well as to the proficiencies required for an individual to achieve career satisfaction. Community college leaders are encouraged to maintain a continuing dialogue with high school administrators and faculty, as well as with college and university decision makers, with regard to program scope and sequence. The student should experience little or no loss of continuity, or loss of credits, when moving from one level or education to another.

4. Associate Degrees

(a) *The Associate in Arts and Associate in Science Degrees*

These degrees primarily prepare the student to transfer to an upper-division baccalaureate degree program. Programs leading to these degrees are similar in nature. The general trend has been to offer the associate in science degree to students who wish to major in engineering, agriculture or the sciences with heavy undergraduate requirements in mathematics and science. The associate in arts degree gives emphasis to those majoring in the social sciences, humanities, arts, and similar subjects.

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However, it should be noted that the distinction between the two degrees and the eventual baccalaureate major has become somewhat blurred in recent years. Students awarded associate in arts or associate in science degrees should be accepted as junior level transfers in baccalaureate degrees granting institutions.

(*b*) *The Associate in Applied Science Degree*

The second type of degree program is designed to lead the individual directly to employment in a specific career. While the titles given to these degrees vary considerably among community, technical and junior colleges, the most common title is associate in applied science. Other titles used are associate in business, associate in applied arts and sciences. It should be noted that the number of degrees awarded in these occupational areas has been increasing in the last two decades. In some instances particularly in the health-related fields, the degree is a prerequisite for taking a licensing examination. Some institutions belong to voluntary specialized accrediting agencies that set qualitative and quantitative degree standards for their programs. Although the objective of the associate in applied science degree is to enhance employment opportunities, some baccalaureate degree granting institutions have developed upper division programs to recognize this degree for transfer of credits. This trend is applauded and encouraged.

5. A Community College

The technical/vocational colleges or institutes are offering mostly programs leading to direct employment, at the end of the completion of the prescribed curriculum and training for each program. Such institutions are usually awarding the Associate of Science or the Associate of Applied science degree, at the end of the successful completion of the equivalent of two or three years of education and training. These institutions might also offer some transfer academic programs. Their major emphasis and mission, however, is in providing their students with the necessary knowledge and skills needed for immediate employment after graduation. By far, the great majority of these institutions are public and the ones which are private are for not-for-profit.

The overwhelming majority of the public two-year institutions in this country are the community colleges, the newest type among the American post secondary institutions. These institutions are comprehensive in their offerings and services. They put equal emphasis on both academic education and vocational/technical training, award both the Associate of Arts and the Associate of Science degrees, and offer extensive community services. As noted already, the community colleges are a relatively new phenomenon in the American educational landscape, having developed after World War II. They have become very popular—every state in the Union has some type of a public community college system. The original impetus for the development of the community colleges came from a report of a higher education commission appointed by President Harry Truman, after World War II. The actual development of the community colleges, however, was accomplished through the leadership of a few educators and community civic leaders around the country. They are, generally, the result of grassroots movement from the people, rather than the imposition of them on the public by the government. They are presently the most popular higher education institutions in the United States.

A community college was normally established to serve a certain geographic area, usually called community college district or service area. (Such areas should be a segment of a large city, a city, a part of a county, a county, several countries together, or even a whole state). A community college may have a single campus or several campuses within its district. Its mission basically is to serve the educational and training needs of the people, industry and business of that area. It is because of this that the community college's curriculum reflects the needs and aspirations of the community it serves. A community college offers academic education for students desiring to go to a university to complete a four-year degree. This is possible because, in this country, the first two years of university education is normally mostly in general education—basic arts and sciences required for all educated individuals—and the initial course work in professional education. Thus, even though education in the first two years in college might not be exactly the same from state to state and, indeed, from institution to institution, the curriculum is similar enough to allow this flexibility in the American postsecondary educational arena. Additionally, the community colleges offer, extensively, the technical and vocational programs needed by industry, business, governmental agencies and the professions in their area of service.

A community college assesses the needs of the communities it serves and then offers training programs needed for the acquisition of skills that will enable individuals, taking these programs, to find employment in the community. The community college comes, also, to the assistance of local industry, business and professional concerns in training individuals for their specific or special needs. Such training may be done in the technical shops and laboratories of the college or in the trade halls, factories, laboratories or other establishments of the concerns needing to have the training done. Because of that, community colleges work very closely with chambers of commerce and local industry, labor, and business leaders. As a matter of fact, each one of the technical and vocational programs, offered by community, technical, and junior colleges is designed and supervised with the assistance of citizen advisory committees, made up of persons who are practicing in and are recognized leaders of that technical or professional field, encompassing individuals from industry, business, labor and professions.

Part of the needs assessment is also the identification of areas the community college may offer to fill the vocational needs of the general population in its service area, such as, bringing in speakers for current and other issues, providing cultural programs for the general public, systematic, but not for credit, training in self-improvement or leisure-type activities (in such areas, for example, as the arts, health and physical fitness, development of hobbies), and providing the space for and expertise in other fields and areas in which substantial part of the population is interested. Community colleges do also keep their facilities available for other worthy community functions which are neither sponsored nor conducted by the college itself.

Community colleges admit any citizen who wants to attend them. There are no prerequisites for enrolment in a community college, except possible age. That is, normally, one has to be eighteen years old; for some programs, however, the age could drop to 16. In some cases, special agreements with local high schools are worked out so that high school students, during their junior and senior years (last two years), may attend specific courses in community colleges. There is no upper limit in age for entering a community college—as a matter of fact there are individuals who graduate with an Associate degree after they retire from their life long jobs. It is not unusual to find, in a community college, a student in his/her seventies or older sitting next to an eighteen-year old, in the same classroom, taking the same program. However, even though there is no academic prerequisite to be admitted in a community college, the admission to a specific academic or technical program usually requires such prerequisites as high school diploma, or the equivalent, and proficiency in certain academic areas.

Because of the totally open-door admissions, community colleges receive a substantial number of students which are not prepared well enough to enter the program they would like to pursue. In order, that students who do not have the background of an adequate academic preparation, to meet entry requirements into specific programs, the community colleges offer special programs (often called developmental), designed for such students. This is especially true in the development of the required proficiencies in the areas of mathematics, sciences and reading. Foreign students coming in the community colleges without an adequate command of the English language are enrolled in courses designed for that purpose. Such courses normally go under the general term of "English as a Second Language". Oftener than not foreign students enrolling in an American university will attend beforehand, or concurrently, a nearby community college to improve their English language skills.

6. Response

Today, the community, junior and technical colleges in the United States enroll close to five million credit-carrying students (in university quality programs). They enroll more first-time freshmen (first-year) students than all the rest of the colleges and universities put together in this country. Their students range from young entering freshmen, to older students who decided to start college late, to senior citizens. They vary from students with no former college background, to individuals who have one or more university degrees already, and from unemployed individuals seeking to gain a saleable skill in a technical field to employed workers who desire to acquire additional academic and technical skills either for job advancement or for their own self-improvement. Additionally, the community colleges enroll close to another five million of non-credit students (in a vocational and special interest programs).

7. Accredition

Incidently, the reference to regionally accredited institutions in the opening paragraph is important, as the achievement of getting accredited, by the accrediting agency of the region the college is located

(*Contd. on page* 16)

Regional Engineering College, Warangal (A.P.)

ADMISSION TO POST-GRADUATE PROGRAMMES 1990-91

Applications are invited for admission to the following Postgraduate Courses for the session 1990-91.

(1) Three-Semester (1-1/2 Year) M.Tech. Courses in :

(i) Geotechnical Engineering; (ii) Engineering Structures; (iii) Transportation Engg.; (iv) Water Resources Engg.; (v) Design & Production Engineering (Machine Tools) (vi) Design & production of I.C. Engines & Gas Turbines; (vii) Computer Science; (viii) Electronic Instrumentation; (ix) Power Systems Engineering; (x) Electrical Machines & Industrial Drives; (xi) Chemical Engineering (Computer-Aided Process and Equipment Design); (xii) Industrial Metallurgy.

(2) Two-Year M.Sc. Course in Applied Mathematics.

(3) Three-Year M.Sc. (Tech.) Course in Engineering Physics.

(4) Three-Year Course in Master of Computer Applications.

(5) Two-Year M.Sc. Course in Chemistry.

M.Tech. Courses : Minimum Qualifications : Degree in Engineering or Technology. (For details see Prospectus).

Admission to all M.Tech. Courses will be on the basis of the percentile score obtained at the GATE held in Feb, 88/90. However, candidates seeking admission to M.Tech. Electronic Instrumentation and M.Tech. Computer Science Courses will also have to appear for an Entrance Test to be conducted by the College. The weightage for the Entrance Test will be as given in the Prospectus.

Post-graduate scholarship of Rs. 1800/- per month will be paid to those who are admitted to M.Tech. Courses on the basis of percentile score at the GATE subject to the terms and conditions prescribed by Government of India.

Any of the seats remaining unfilled in M.Tech. Courses after considering the applications of candidates who have qualified at the GATE, may be filled at the discretion of the Head of the Institution, by considering the applications from Non-GATE candidates. A few seats (as per the rules of the college) in each of the M.Tech. Courses may be given to candidates sponsored by Government Organisations/Public Sector undertakings and Educational Institutions or other reputed industries/organisations, without scholarship. Selection of candidates under these categories and also Non-GATE candidates will be on the basis of merit at the Entrance Test to be conducted by the College, subject to the condition that they secure a minimum of 55% marks in the aggregate at the qualifying Examination.

M.Sc. Courses and M.C.A. Programme :

Minimum qualifications for admission are given in the Prospectus.

The criterion for admission to these courses will be the performance at the Entrance Test (Written examination) to be conducted by the College.

Admission to all the Post-graduate courses (except for M.Sc. Chemistry), is on all-India basis. Only candidates of Andhra Pradesh are eligible for admission to M.Sc. Chemistry Course.

Reservations : Two seats are reserved for SC candidates and one for S.T. candidates in all M.Tech. courses and M.Sc. courses for which admission is on all India basis. The details of reservations with regard to M.Sc. Chemistry and M.C.A courses are given in the prospectus.

Requisitions for application forms should be sent to the Principal specifically mentioning the specialisation in capital letters along with a Crossed Demand Draft for Rs. 10/- drawn in favour of the Principal, Regional Engineering College, Warangal, payable at State Bank of Hyderabad, Regional Engineering College Branch, Warangal and self-addressed envelope of size (25 cm x 15 cm) with stamps of value of Rs. 4-50 affixed. **Candidates who wish to apply for more than one specialisations, have to send separate requisitions, each with a Demand Draft for Rs. 10/- and required stamped envelope.** Last date for receipt of filled in applications is 11-6-1990.

PRINCIPAL

Profile of an Engineering College

K.S. Anantha Krishna*

In these days when engineering colleges are mushrooming all over the country and academic standards have hit rockbottom, colleges like the Manipal Institute of Technology (M.I.T.) provide reason enough for optimism. Not that the M.I.T. is, by any means, comparable to its namesake in the United States, in reputation and academic excellence, but it certainly stands out as one of the more efficiently managed institutions, the private tag not withstanding. For the thirty three years of existence, which it claims, it could have been far better placed in its quest for excellence, but for a rather long delay in the starting of post-graduate programmes, which are still in the take off stage. Nevertheless, the undergraduate programmes, being offered in eight disciplines, are running like a well oiled machine and are probably among the most sought after ones in South India.

If infrastructure facilities alone could determine the success of an engineering college, M.I.T. would have been in the forefront of technical education in the country today. The sprawling residential campus perched on the top of the Manipal hill, overlooking the soaring western ghats with the valley in the foreground, provides as picturesque a setting as can be imagined. The main building, as it is called, has a total floor area of about two lakh square feet and houses the administration areas, classrooms, drawing halls, most of the laboratories and the computer centre. The library block, to the south of the main block, has about 30,000 books and 300 journals. The workshops—carpentry, foundry, smithy, fitting shop and metrology and the laboratories of Mechanical and Chemical engineering departments, are to the South of the library block. A series of hostel blocks located beyond the workshops, accommodate almost all the 2500 students of the Institute. There are a variety of messes, attached to the hostel blocks, which cater to the diverse tastes of the students, who hail from all corners of the country. Sports and recreational facilities include hostel library, games room, flood lit basket ball court, shuttle badminton hall, swimming pool, tennis court and cricket ground. The majority of the faculty members are provided with residential accommodation on the campus which ranges from one-room apartment to three bed room bungalow. A temple, overlooking a garden and located amidst the staff quarters, completes the list of amenities.

Despite the extensive nature of the facilities, orderly development was absent, at any rate, until recently. Adhoc decisions on locational planning have taken their toll and the campus presents a rather confused picture with no proper segregation of incompatible uses. For instance, students' hostels and staff quarters are too close for the comfort of either the students or the staff. The privacy of the swimming pool is intruded by tall hostel blocks on the East and Professor's flats on the west. The linear development of hostel blocks has led to increased distances to the college. The majority of the buildings do not reflect the beauty of the enchanting scenery all round. It is only in recent years that steps have been taken to introduce an aesthetic element into building design, though this has met with considerable resistance.

The physical facilities in the various departments are quite satisfactory. The laboratories are well-equipped, though some of the machinery have become outdated and need replacement. There has been a constant effort to match the equipment with the increasing student strength. However, this has not been very successful in some departments because of a premium on the availability of space. The space crunch, is likely to be relieved with the completion of a colossal Civil and Architecture block with a total floor area of nearly two lakh square feet. The computer centre, which is a central facility serving all the departments, has a ZENITH super Lan system with thirty five nodes. There are PC's with ten terminals a Zenith Pegalus mini-system with four terminals and a plotter with Mouse and Digitizer.

Students form a very important component of any educational system and their mental capacities and motivation determine, to a large extent, the success of the system. Admittedly, at M.I.T., we do not get the very best of them, who quite expectedly prefer IIT's and government colleges. Nevertheless, the next rung of students, who are not very far behind the cream, opt for M.I.T. and are capable of giving their counterparts in REC's and the like, a run for their money. However, since the students hail from

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**Professor and Head, Department of Architecture, Manipal Institute of Technology, Manipal-576119.*

different states, with different educational standards at the 10+2 level, comparison is difficult and mediocre students do sneak in. Strict control on the admission requirements of students, in the form of an entrance test, may improve the quality of the raw material taken.

Students discipline, both inside the classroom and outside it, is satisfactory, minor aberrations not withstanding. Strikes are uncommon and attendance and sessional requirements are taken more seriously than in most other colleges. Examination malpractices are almost non-existent. Since nearly 2500 students with diverse backgrounds, stay in the hostel blocks in close proximity, occasional skirmishes are only to be expected. To keep such things under control and ensure a congenial atmosphere in the hostel blocks, there is a network of wardens, who take their job as seriously as one might expect. Classroom attendance is however, not upto the mark, with a considerable percentage of students failing to fulfil the minimum prescribed. The majority of the students are vocal and articulate in voicing their grievances and concerns which are attended to immediately.

The faculty members are not from such varied backgrounds as the students, with the majority of them from within the state. About forty per cent of them are postgraduates or doctorates and the rest are graduates. Efforts are on to improve the quality of teaching faculty, by sponsoring them for higher studies. Though not as well accomplished as their counterparts in the IIT's and REC's, they make it up by their sincerity and devotion to work, at any rate, the majority of them. Perhaps, the number of classes engaged, as a percentage of the prescribed classes, is highest at M.I.T. Sadly, however, academic rigour is absent, in all but a few, since the majority confine themselves to teaching and evaluation. Research and Consultancy activities are not worth their mention, though recently, efforts are being made to coax the teachers to venture into these areas. The academic atmosphere is being stimulated by making the faculty give weekly seminars. The turnover of faculty members, especially at the lower rung is very high and many of them, for whom teaching is a stop-gap arrangement, do not measure upto students' expectations.

The success, which the Institution has achieved in good measure, can be attributed largely to the top management style at M.I.T. There is a system of checks and counterchecks which monitors the performance of the Institute. The management takes a keen interest in the working of the Institute and shortcomings are quickly noticed and corrected. Teachers' performance is monitored both by formal and informal means. Decision making is quick and there is a genuine concern for improving the standard of instruction of the teachers and the level of performance of the students. Red tape, which is typical of many a government college, is kept to the minimum. The annual budget of M,I.T. is about three crore rupees which works out to about Rs. 15,000 per student per year. This is comparable to the amount spent by the REC's. Nevertheless, long range perspective planning is not in evidence. The increasing student strength has made the system less viable and there is a proposal to subdivide M I.T. into three units viz., College of Electrical and Information Sciences, College of Mechanical, Industrial Production and Chemical Engineering and College of Civil Engineering and Architecture. The aspect of human resource probably needs more attention. There is every reason to end on an optimistic note that M.I.T. would overcome the challenges, both internal and external, and move closer towards achieving excellence in engineering education. □

COMMUNITY AND JUNIOR COLLEGES IN THE UNITED STATES

(*Contd. from page 13*)

in, signifies that the college is recognized by the other colleges and universities that it is, indeed, a higher education institution and that its credits are of collegiate (university) quality, and therefore transferrable to other colleges and universities. (The United States has been divided into six accrediting regions). The quest for regional accreditation, and meetings its prerequisites, as indeed for any accreditation in this country, is a voluntary action by the institution. Regional accreditation is the way American educational institutions police the quality of their work, and it is a prerequisite for any other accreditation action, as the ones conferred to professional schools (as medical, dental, law, etc.). No college located in the United States may be admitted to American Association of Community and Junior Colleges (AACJC) unless it is regionally accredited.

8. Financial Support

For the majority of the community colleges, financial support comes mainly from local taxes, state appropriations, and the tuition fee paid by the students. In systems that either are totally governed by the state or the state university, the great majority of the financial support comes from state appropriations, while local governments (city, county, school, districts) contribute very little, if anything at all. Locally controlled community colleges receive considerable financial support from local taxes. Additionally, community colleges participate in federal funding programs, especially the ones that provide financial assistance to the students. Other funds received by the community colleges come from charitable contributions given by individual citizens, business, labor, industry, civic organizations and foundations. □

THE MORAL CRISIS

Noted historian Prof. Irfan Habib of the Aligarh Muslim University delivered the Convocation Address at the Annual Convocation of the University of Burdwan. In his thought provoking address Prof. Habib observed, "The tendency to separateness—an Indian version of "apartheid"—is a direct reflection of the moral crisis that stalks India today. It too amounts to a rejection of all that we had learned from our National Movement. If the people of India could face Imperialism only when they unitedly came into struggle, any endeavour to build a modern India must similarly call for the united effort of all : no striving towards it can be attempted if our people remain helplessly divided amidst communal, caste, tribal or territorial civil wars." Excerpts

Many of the events that India and the world witnessed in 1989 have admittedly been of a sigularly dramatic character. Under their stress, some of our major professed ideals, secularism, national unity and socialism. have been brought into question on a scale not earlier witnessed. It is clear that our response to this new, reinforced questioning may vitally affect the future of our country.

Convocation

What, for one, came to us with striking sharpness in the departing year in many parts of the world, was a more assertive insistence on establishing one's primary identity by religion. We have witnessed an upsurge of fundamentalism and, accompanying it, a readiness to tear man apart from man. The great message of Reason and Humanism that has held the day since the Renaissance is now challenged in a way not seen since the enunciation of Fascist doctrines of race in World War II. It will be a delusion to suppose that in our country the phenomenon is merely confined to the activities of "militants" in the Punjab or Jammu and Kashmir. Its pervasive presence is borne upon us when we read daily of the crusade to seize and convert a place of worship or change the historic name of a city or blot out a whole period of our common history. Among intellectuals these actions are matched by denunciations of secularism as a mere Western importation, as something alien to the spirit of India (Hinduism) or of Islam or Sikhism. The growth of such mental attitudes seems to me to present an even more frightening prospect than all the individual incidents of intolerance put together.

It is therefore important to realise that we have here a repudiation of not mere western fashions, but of the entire heritage of the Indian Renaissance that nineteenth-century Bengal gave us, and of the National Movement, the common struggle for freedom of all our people, men and women, the different communities, the poor as well as the favoured. It is all the values stood for that are under attack. Persons who only yesterday identified themselves as "Hindus" when called upon to declare their nationality, are now winning recognition in newspaper editorials as the most steadfast of patriots. Official surrender was offered only a little while ago to those who demanded that their community's personal law be left untouched however inequitous it may be to women and minors. Others by analogous logic venture to justify *sati*, untouchability and repression of Harijans. The Constitution given to us in 1950 was not a perfect document; but it did separate the state from religion. This vital separation is daily violated by our governments, radio and television. Secularism is interpreted merely as the encouragement of many religions, rather than one, as if by this device one can conceal the increasing desecularization of our state.

If communalism has contributed to exacerbating our national divisions, there are other forces too which have widened the area of parochialism. There has been, for one, the growth of regionalism. To some extent this is a logical result of a very legitimate desire to promote one's mother tongue as the language of education and administration. The linguistic states were created precisely to meet this desire. But more recently we are tending to see a combination of regional sentiment with caste, tribal and communal affiliations. Exclusiveness is taken to such extremes that outsiders can be denied even the right to life, let alone livelihood. There has been an effort to offer sociological explanations of this phenomenon, notably one that it is an expression of a "subaltern" consciousness, rebelling against "elitist", nationalism. It is, of course, true that ideas of caste and tribe, as of untouchability, have been a part of our mass consciousness—otherwise it would have been impossible for our ruling classes to have made use of them. Yet it will be wrong to forget that they are in fact accentuated and transformed by the upper classes. There is little "subaltern" element left if there ever was one, after such a transformation. The tendency to separateness—an Indian version of "apartheid"—is a direct reflection of the moral crisis that stalks India today. It too amounts to a rejection of all that we had learned from our National Movement. If the people of India could face Imperialism only when they unitedly came into struggle, any endeavour to build a modern India must similarly call for the united effort of all : no striving towards it can be attempted if our people remain helplessly devided amidst communal, caste, tribal or territorial civil wars.

In our vision of an India that can rightfully take its place in the modern world, socialism has long held an established place, thanks to Pandit Nehru, the Left and the Communist Movement. Some years back almost every political party was constrained to include socialism in the basic statements of its political creed. Recent developments in the Socialist countries, especially the upheaval in Eastern Europe, are now suggesting to many that in pursuing socialism we may have been chasing a mere will-o'-the-wisp. It should, we are almost told, be a matter of congratulation, rather than of regret, that we have so far failed in coming anywhere near socialism in practice. "Market economy", we learn, is the Salvation of Man. The teaching is not new : when assessing the economic growth of countries we have been long accustomed to look mainly at the annual rates of growth of their GNP and the levels of their per-capita income. Far more rarely do we read of the scales of income inequalities and the change in the real income of the poorest strata. Capitalism in West Europe and East Asia has seemed to win the race over socialist economies by the first set of criteria in the more recent years; although even here we must remember that the domain of capitalism by whose conditions it should be judged is much larger than the islands of its metropolitan zone in the west and east. And when we feel drawn to the consumerism of the most advanced capitalism, we tend to forget the pervasiveness of the commerce in death drugs, the loneliness of individualism and unequal exchange with the Third World. As against this, it is fitting to remember that socialist societies with all their limitations, have offered some thing different to their peoples. Only the other day Professor Galbraith cautioned us that eastern Europe may lose some vital element of its achievement if it dismantles wholesale the system of social security and controls over income distribution in an urge to copy the Free-Trade Capitalism of Mr. Reagan and President Bush.

One hopes that before some of us also rush to follow the new converts to Friedmanism in Warsaw, Prague and Budapest, we may at least pause to look at the wonders that a brisk free-market economy has performed for our country in the last forty-two years. While the visible wealth of the few has grown dramatically, we remain firm occupants of the highest slots for proportion of population below the poverty line and for illiteracy among the nations of the world. Surely, then, there is all the reason for us here to aspire to build a structure for planned industrial and agricultural growth and a system of fair distribution of income and social, educational and health benefits, which is precisely what socialism is about.

I think all of us would agree that as with secularism and national unity, the struggle for socialism too has to be fought out not only in the streets or through ballot boxes, but also in the minds of men. As teachers this battle for minds lies directly in the sphere where we operate professionally. I do not mean to say that we should, therefore, see ourselves as propagandists of any particular official or partisan cause. The case for secular and socialist values, with all their shades and nuances, cannot in any case be put across by simple one-sided propaganda or strings of slogans. Gramsci reminds us that while in the battle-field one seeks and attacks the enemy's weakest point, in the war of ideas one has to seek out and challenge the opponent's strongest position. One may add that only through such a dialogue and cofrontation can one refine, enrich and develop on's own theoretical framework. What is crucial for bringing about such an informed debate is to provide our people with access to an educational system that makes them able freely to judge the merits of contending dispensations. It is here clearly that we as teachers have a task to perform. Too often, however, when we have discussions on higher education, we tend to focus on issues of salary, professional privilege, institutional autonomy and so on. All these questions are important; I do not contest this; I am only arguing that in the context of the relationship between education and the choice of goals for a society, they are of a secondary significance.

Unfortunately, much of the criticism of the New Education Policy, valid as it largely was, remained confined to these secondary aspects. One searches in vain for any attempt at the construction of an alternative policy, which would stress the importance not only of making education available to the largest number, but also of defining and developing its content and ensuring the actual transmission of knowledge to the taught. No amount of increased national expenditure on salaries of higher categories of teachers, no amount of "autonomy" the removal of "bureaucratic interference" or pursuit of staff-college programmes, will in itself be of any use if classes in colleges and universities remain on paper only, or, if taken, impart to students what they can learn from market notes any way—a dispirited restatement of out-of-date, directionless information.

We ought not to be surprised, therefore, that our educational institutions have failed to generate that reflective and informed concern with the problems of our people which our country was entitled to expect from them. An inefficient, rudderless, educational system like ours, by its very inertia and inaction, exudes the ethos of the bazar and supports the growth of revivalist ideologies. Both thrive on unreason and prejudice.

Surely, then, there is a case for seeing a close association between a substantive improvement in our educational system, and the defence of the values of humanism and socialism, once we agree that the latter can flourish only where reason and knowledge rule. Truly democratic teachers' and students' movements can surely grow only when this connexion becomes pivotal to their programmes, and not just remain a principle to be cited formally, and then put on one side, In this, as in so many other things. one looks for inspiration to one's colleagues in West Bengal, whose enlightened people have already set us such an example by their spirited defence of secularism and the values of socialism. Persistence in this position by all of us could well change the history of this country.

INDIAN STATISTICAL INSTITUTE

Documentation Research and Training Centre (DRTC)
8th Mile, Mysore Road, R.V. College P.O.
Bangalore 560 059

ADMISSION NOTICE

Course leading to the award of

ASSOCIATESHIP IN DOCUMENTATION AND INFORMATION SCIENCE
SESSION : 1990-92

Applications are invited for admission to the course leading to the Associateship in Documentation and Information Science (12 months residential +12 months non-residential).

Minimum Qualifications for admission :

(i) a postgraduate Bachelor's Degree in Library Science (B. Lib.Sc./B.L.I.S.); or
(ii) a second class Master's Degree in any subject and at least two years' library/documentation/information handling experience ; or
(iii) a four-year plus degree, such as B.E. and M.B.B.S. and at least two years' library/documentation/information handling experience.

Applicants may be required to appear in a selection test and interview. No tuition fees are charged for the trainees. A stipend of Rs. 600/- per month may be granted to a student on the merit of his/her performance. A candidate admitted to the course, enjoying full deputation from an organisation, will not receive any stipend. A copy of the application form and prospectus can be had on payment of Rs 5/- (Rupees five only) by cash/money order from the Professor and Head, DRTC, 8th Mile, Mysore Road, R. V. College P.O., Bangalore 060 759.

Last date for receipt of filled-in applications : 30 June' 1990.

PANJAB UNIVERSITY (CHANDIGARH)

Advertisement No. 4/90

Applications are invited for the following posts, so as to reach the Registrar, Panjab University, Chandigarh by **7-6-1990**. The total emoluments (including CCA/HRA) admissible at present with the minimum/maximum of the scale of pay are shown in the brackets :

1. Deputy Librarians—4

(One for P.U. Library, Chandigarh, One for Deptt. of Mathematics, One for P.U. Evening College & One for VVBIS & IS, Hoshiarpur).

Rs. 3700-125-4950-150-5700
(Revised UGC Scale)
(Minimum Rs. 5690.00)
(Maximum Rs. 8225.00)

Qualifications

- (i) Master's Degree in Library Science/Information Science/Documentation with atleast fiftyfive percent marks or its equivalent grade and a consistently good academic record;
- (ii) One year specialisation in an area of information technology/Archives and Manuscript keeping or Master's Degree in an area of thrust in the institution;
- (iii) Eight years experience as an Assistant University Librarian/College Librarian: and
- (iv) Evidence of innovative library services, published work and professional commitment.

Desirable : M.Phil/Ph.D. degree in Library Science/Information Science / Documentation / Archives and Manuscript keeping.

2. Assistant Librarians—5

(Regular 1 and Temporary—4)
(for P.U. Library, Chandigarh)

Rs. 2200-75-2800-100-4000
(UGC Revised Scale)
(Minimum Rs. 3448.00)
(Maximum Rs. 6090.00)

Note : (a) There is a possibility of temporary posts to be converted into permanent ones.
(b) Three Assistant Librarians will also be required to work in the late-night shift at any particular time by rotation.

3. Assistant Librarians—2

(One for Deptt. of Laws and One for Deptt. of Chem. Engg. & Tech.)

Rs.. 2200-75-2800-100-4000 (UGC Revised Scale) (Minimum Rs. 3448.00) (Maximum Rs. 6090.00)

Qualifications : Essential

Master's degree in Library Science/Information Science/Documentation or an equivalent professional degree with atleast fifty five percent marks or its equivalent grade plus a consistently good academic record;

OR

Master's degree in Arts/Science/Commerce or equivalent degree with at least fifty five percent marks or its equivalent grade with Bachelor's degree in Library Science/Information Science/Documentation or an equivalent professional degree with atleast fifty five percent marks or its equivalent grade plus a consistently good academic record.

Other things being equal, preference will be given to condidates with :

- (a) Doctoral/Master's degree in a Classical/Modern/Indian Language, Desirable proficiency in French/German/Russian/Tibetan (Two posts).
- (b) Manuscript-keeping and Archive-keeping (One post).
- (c) Evidence of working with the latest information Technology.
- (d) Degree/Diploma in Computer Programming from a recognised institution and experience of working with Micro-Computers in Libraries and electronic data-processing (Two posts).

Note
1. It is not obligatory on the part of the University to call all eligible persons for interview.
2. The Vice-Chancellor could place before the Selection Committee names of suitable persons for its consideration alongwith the applications received in response to the advertisement.
3. The number of posts mentioned in the advertisement may change at the time of selection. University reserves the right to increase/decrease the number of posts.
4. The University may also prepare a panel in order of merit upto 3 persons which shall be valid for a period of six months.

Persons already in service should route their applications through proper channel. They may, however, send one copy of the application (on the prescribed proforma) direct to the University. They will be allowed to present themselves for interview on the production of 'No Objection Certificate' from their employer. Incomplete forms will not be considered. Forms received after due date are liable to be rejected unless the Vice-Chancellor condones the delay by a special order. Attested copies of Certificates in support of qualifications be attached to the applications. Canvassing in any form will disqualify the candidates. Higher start to deserving candidates is admissible.

Application form can be obtained from the Cashier, Panjab University, personally. The cost of application form (inclusive of the application fee) is Rs. 15/-. The priced form may also be had by making a written request to the Deputy Registrar (Estt.), Panjab University, Chandigarh accompanied by a self-addressed stamped envelope of 23 x 10 cms and a postal order of Rs. 15/- drawn in favour of the Registrar, Panjab University, Chandigarh-160014.

Narendra Deva University Convocation

The Sixth Convocation of Narendra Deva University of Agriculture and Technology, Faizabad was recently held at its main Campus, Narendra Nagar. Delivering the convocation address, Shri B. Satya Narain Reddy, Governor of Uttar Pradesh and Chancellor of the University, said that self sufficiency achieved in agriculture was commendable and was only possible due to sincere efforts of the farm scientists, policy makers and painstaking labour put in by the farmers. He urged the scientists to make agriculture sustainable and economically viable to young rural men and women so that they cope up with scale of production as per national needs. He further added that University being located in the heart of villages had greater opportunity to understand the problems of farming community and thereby providing amicable solution to the rural people.

The Chancellor emphasised that disturbance of ecological balance due to increase in the area under agriculture, civilization and development had posed alarming threat to the survival of human race. He appreciated the efforts of University Scientists for developing an appropriate technology for encouraging afforestation programme on Usar and Wasteland which could be adopted to get a new momentum in protection of ecological imbalances. While detailing the various programmes the Chancellor urged the University Scientists and extension personnel to fight the problems of poverty, illiteracy, untouchability, superstitions, etc. which were associated with the weaker sections of the society through ages.

Mr. Reddy said that the university had made considerable progress in the field of teaching, research and extension activities. Adequate State and Central assistance, he said, should be provided in order to cater to the needs of eastern part of U.P. in increasing the agricultural production and uplifting the socio-economic conditions of the farmers. He extended the heartiest congratulations to all the recipients for their distinct achievements and concluded his address by recalling the dream of Tagore "Tireless striving stretching its arms towards perfection".

Earlier presenting the University report, Dr. U.C. Upadhyay, Vice-Chancellor, briefly discussed the various developments of Teaching, Research and Extension.

Two Steps to Progress

Dr. Susheela Nayar, personal physician to Mahatma Gandhi and former Minister of Health, visited Mother Teresa Women's University, Kodaikanal on 3.5.90. During her interaction with the faculty and the students, Dr. Nayar advocated two steps to progress : (i) mobilisation of women through literacy, and (ii) subsequent inculcation of a value system. These steps acquired a greater significance because they were tools used by Gandhiji himself. Dr. Nayar said that her own life had been an effort to sustain the spirit of service and progress, which was envisaged by Gandhiji. In an impassioned plea, she urged the educated women of India to rise above their complacency and help millions of their less fortunate sisters in the rural areas.

Dr. J.K. Pillai, Vice-Chancellor, remarked that the very fact that the audience was coaxed into thinking about possible steps to achieve what was expected of them by Dr. Nayar, or rather by Gandhiji himself, was an indication of the success of Dr. Nayar's efforts.

News from Agril. Varsities

Rice Research for Greater Productivity

The Rice Scientists Meet of the Tamil Nadu Agricultural University (TNAU) was held at Tamil Nadu Rice Research Institute, Aduthurai from May 3 to 5, 1990. Seventy scientists working in different rice research stations in Tamil Nadu participated in the discussion. Dr. S. Jayaraj, Vice-Chancellor, TNAU, presided.

Speaking on the occasion, Dr. Jayaraj stressed the need for inter-disciplinary team research to step up the rice production in the state. Dr. S. Chelliah, Director of Research presented a model on the scope for team research to increase rice productivity. It was decided to take up theme-oriented, inter-disciplinary research on rice at Aduthurai, Madurai and Coimbatore.

The scientists expressed concern over the sharp decline in total rice area in Tamil Nadu which has gone down from 25.64 lakh ha (1975-76) to 19.50 lakh ha (1989-90). To compensate the area reduction, Dr. Jayaraj emphasised the need to augment seed production, development of multiple resistant varieties, emphasis on green manures and appropriate plant protection measures. The participants also felt the immediate need to regulate the conversion of rice lands to house sites.

As a follow up of the discussion, it was resolved to give sharp focus on some of the research areas which would lead to increased productivity. During the ensuing year, research on green manure farm machinery, biofertilizers and yield maximisation will be intensified. The scientists also decided to demonstrate the usefulness of Integrated Pest Management in 100 acre plots in four locations representing different agro-climatic regions of the state. Transfer of Technology through the On-farm Trials will receive special attention to facilitate early demonstration of technology to rice farmers for immediate adoption.

Haryana University Teachers Convention

Shri Dhaniklal Mandal, Governor of Haryana recently inaugurated the First Convention of Haryana Federation of University Teachers Association (HFUTA) held at the HAU premises. Speaking on the occasion, Shri Mandal asked the teachers to rise above the evils of casteism, regionalism and above all the false ego and socalled modernity due to which our social structure itself had been affected severely. He asked the teachers to inculcate the moral values in themselves and reminded of the ancient Guru Shishya tradition so that teacher-taught relationship could be revived in traditional footings again. Expressing his concern over the lack of conducive atmosphere in the university, Shri Mandal advised the teachers not to join the mad race of materialism of the day. He warned them to be aware of the anti-national forces and said that some of our own people were doing maximum harm to the nation by indulging in anti-national activities on one hand and by talking of the 21st Century programme on the other. He asked them to ponder over the situation and follow the U.G.C. norms in their profession.

Shri Mandal also visited the various departments of the University and lauded the research work being done by HAU scientists in the field of agriculture, animal sciences, and veterinary sciences.

Dr. Amrit Lal Chaudhry, Vice-Chancellor, delivered a key-note address on "Role of Teachers in Universities—21st Century". In his address, Dr. Chaudhry emphasised on interactive teaching which was based on the components of response, reaction, challenge and modification. As per changing circumstances and to make developmental efforts successful, Dr. Chaudhry asked the teachers to develop an affective work culture. He asked them to demonstrate exemplary traits in themselves as also their students.

Oilseeds Scientists Meet

Dr. S. Chelliah, Director of Research, inaugurated the Oilseeds Scientists' Meet at the Tamil Nadu Agricultural University, Coimbatore and commended the scientists for the release of Groundnut VRI 3 and Gingelly Paiyur 1, which fit in many cropping situations and have a wider acceptability. He stressed the need to develop drought tolerant varieties coupled with management practices for drought tolerance for the successful cultivation of oilseed crops. He also dwelt on the need to improve important non-edible oilseed crops like Neem, Iluppai and Pungam. Dr. S. Thangavelu, Professor and Head, Regional Research Station, Vridhachalam and Lead Scientist highlighted the achievements in the production technology and presented the promising cultures in groundnut, gingelly, sunflower, coconut and castor. It was decided to extend coconut research in Pariyakulam to cater to the needs of Cumbum valley.

Dr. S. Jayaraj, Vice-Chancellor, TNAU, who presided the plenary session, stressed the need to boost oilseed production as it occupied a position next only to rice. He further emphasised the need for interdisciplinary approach so as to have comprehensive projections of valid recommendations for the farming community.

Centre for Plant Molecular Biology

The Department of Biotechnology, Government of India, has sanctioned a Rs. 3.0 crore project for Tamil Nadu Agricultural University (TNAU) to start the Centre for Plant Molecular Biology. The Plant Molecular approach breaks the barriers usually encountered in conventional breeding. Research time is saved, and paves way for hybridisation with wild varieties for getting better traits.

In this project, scientists and students exchange programme among national and international institutes of repute is also envisaged. Two crore projects of the centre are genome organisation and wide hybridisation. These projects aim at In-situ hybridisation and chromosome banding, molecular approaches and manipulation of vigour, mitochondrial DNA and proteins in cytoplasmic male sterility in rice. The wide hybridisation for transfer of floral traits, perpetuation of heterosis and molecular basis for tolerance to low light intensity will also be attempted.

Japanese Team Visits TNAU

The members of Agricultural Development Consultants Association, Japan visited the Tamil Nadu Agricultural University (TNAU), Coimbatore recently. They were apprised of the ongoing research and training programmes at Paddy, Millet and Cotton Breeding Stations, Wetland, Orchard and Department of Seed Technology. They were given an account of the seed production programmes and techniques of various crops. Research programmes on seed processing, seed storage, seed health were also highlighted.

The members of the team visited Agricultural Research Station, Bhavanisagar for on the spot study of the breeders seed production programme and also held discussions with Dr. S. Jayaraj, Vice-Chancellor and other members of the faculty.

Cell Culture Vaccine for Theileriosis

Scientists of Haryana Agricultural University (HAU) have developed an effective vaccine against a deadly bovine tropical disease which has been particularly harmful to pure-bred exotic cattle and the crossbreeds. Known as Theileriosis, the disease has been responsible for economic loss caused by high morbidity, weakness, anaemia, low milk yield and high rate of mortality of high yielding cows. According to an estimate, a large number of cattle die every year because of Theileriosis. Very young calves and adult cows are the main sufferers of this disease.

Systematic investigations were undertaken by Dr. R.D. Sharma, Senior Scientist of the Department of Veterinary Medicine of the university, who has developed a suitable cell culture vaccine to prevent this disease. The most pathogenic stage of lethal strain of its causative agent i.e. Theileria annulata was propagated in cell cultures in the laboratory and was experimentally tested and developed through extensive experimental trials. The vaccine has been found to be safe and highly protective for the susceptible stock even in very young calves.

The development of this cell culture vaccine will be very useful in preventing heavy economic losses due to this disease in the field conditions and the farmers will feel assured for adopting cross-breeding in their cattle.

News from Abroad

Autonomy for Soviet Universities

About a dozen of the top Soviet universities may be granted full autonomy under plans being drawn up by Professor Gennady Yagodin, Chairman of the State Committee for Public Education. The move would be intended to discourage more universities from declaring unilateral independence from the state.

The plans for autonomous universities are still at an early stage, and might apply to only about 10 of the most highly developed institutions in the USSR. But those like the Moscow State University, which enjoy an international reputation, should be self-governing within agreed statutes.

Autonomy would allow the favoured few to award their own degrees and make all their own appointments without reference to the state committee. State funding, which accounts for only about half the budgets of the universities concerned, would continue unchanged.

Fully independent universities have been created in several of the Soviet republics, some from the restructuring of existing institutions. Although Professor Yagodin stressed that there would be no attempt from Moscow to interfere with such initiatives, he is on record opposing financial independence in higher education. Even a proposed American campus in Moscow may have to be associated with a state university to enable the project to proceed quickly

An open university is also under consideration as part of the government's effort to modernize higher education and produce a more highly skilled workforce.

The open university is intended to satisfy the desire for greater educational stimulation among the millions denied higher education as much as providing enhanced qualifications. Teachers will be given top priority in updating programmes and the university is likely to have satellite institutions in major cities.

Among the other measures designed to improve Soviet higher education are a 50 per cent increase in student grants and more money to be made available for loans. Although Soviet students will still receive only about £70 per month in grants, the rise is seen as an incentive to increase participation rates.

Human Resources Development Award

The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) has established an annual award in recognition of exemplary work in the field of human resources development. The theme for first year's (1990) award is "human resources development aspects of environment. The granting of the 1990 award has been made possible through the financial support of the Government of France.

The award is open to resident nationals of developing countries and territories of the ESCAP region who have conducted exemplary research or contributed to other innovative achievement in the field of human resources development. The research or other activities must be recent in nature and must relate to the theme of "human resources development aspects of environment."

The criteria for selection of the award-winner include: contribution to human resources development in Asia and the Pacific; originality; scientific merit; and cost-effectiveness in application.

The evidence to be submitted in application for the award may be in the form of a published book or article, photographs, models or other physical evidence, and/or a clear description of the activity and output (limited to 5,000 words of double-spaced typing). Affidavits of authencity may be requested.

The award will consist of a monetary prize of approximately US $2500. In addition, the award winner will receive a fellowship worth approximately US $ 10,000 for a study trip to France to be undertaken within two years of receipt of the award. Alternatively to the study trip, the award-winner may opt to receive the sum of approximately US $ 4,000 in support of further research in his/her home country.

Nominations for the 1990 ESCAP award should be sent by 1 December 1990 to: Chief, Social Development Division, ESCAP, United Nations Building, Rajadamnern Avenue, Bangkok 10200, Thailand.

World Declaration on Education for All

The World Conference on Education for All--Meeting Basic Learning Needs (WCEA) held from March 5 to 9, 1990 at Jomtien, Thailand brought together some 1500 delegates from non-government organizations and governments, including four heads of state, from over 150 countries to discuss means to meet basic learning needs. The conference, co-sponsored by the UNDP, UNESCO, UNICEF and the World Bank, called upon all governments to give education top priority in their development plans. It was the first time that government and non-government agencies had met to create a new awareness of the urgency of achieving education for all.

Following the opening ceremony, the delegates met in 48 plenary sessions and thematic roundtables to discuss and analyze key issues and present case studies on topics concerning adult and lifelong education, illiteracy, early childhood and primary education, the impact of culture, environment, language, technology, nutrition and health, on education, etc. Distance education was also discussed in the thematic roundtable 'Greater Access to Better Quality: Distance Education for Primary School Improvement'.

The conference concluded with the approval of the World Declaration on Education for All, calling upon countries to provide basic education for everyone by the year 2000. The declaration reaffirms the right of all peoples to education and, at the same time, the economic burdens facing the developing world are recognized. Increased international cooperation to ease these burdens is called for and individual countries are asked to make a corresponding political commitment to improve access to and quality of education. Women, the disabled and refugees are singled out as people requiring special priority in education planning. To accomplish this, the mobilization of the mass media, improving the status of teachers, non-formal education in health, the environment, agriculture and population, and worldwide mobilization of financial resources are urgently needed.

We Congratulate ...

(1) **Dr. Upendra Baxi who has taken over as Vice-Chancellor of the University of Delhi.**

(2) **Dr. H.C. Visvesvaraya who has taken over as Vice-Chancellor of the University of Roorkee.**

(3) **Shri Subhash Vidyalankar who has taken over as Vice-Chancellor of the Gurukula Kangri Vishwavidyalaya, Hardwar.**

(4) **Dr. Prabhakar Wasudeo Amin who has been appointed Vice-Chancellor of the Punjabrao Krishi Vidyapeeth, Akola.**

(5) **Prof. C.N.R. Rao, Director, Indian Institute of Science, Bangalore, who has been elected member of the US National Academy of Sciences.**

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

SOCIAL SCIENCES

Psychology

1. Chowdhury, Mallika. *Testing of transactional leadership in Indian setting.* BHU. Dr. A.P. Singh, Department of Psychology, Banaras Hindu University, Varanasi.

2. Dwivedi, Narendra Dev. *Home settings and cognitive/non-cognitive competence.* BHU. Dr. A.P. Shukle, Department of Psychology, Banaras Hindu University, Varanasi.

3. Jaiswal. Usba Kumari. *A study of self actualization in university teachers.* BHU. Dr. Ranjana Mitra, Lecturer, Department of Psychology, Mahila Maha Vidyalaya, Banaras Hindu University, Varanasi.

4. Serkhel, Reena. *Organizational health and QWL.* BHU. Dr. A.P. Singh, Department of Psychology, Banaras Hindu University, Varanasi.

5. Singh, Poonam. *Social support, mental health and chronic illness.* BHU. Dr. M. Arora, Department of Psychology, Banaras Hindu University, Varanasi.

Sociology

1. Bhagyaletha, T.K. *Culture and disease : A study of the sick.* Kerala. Dr. G. Narayana Pillai, Department of Sociology, University of Kerala, Kariavattom.

Political Science

1. Jayasenan, G. *Political polarization in Kerala :- Problems, analysis and treads of the state party system.* Kerala. Dr. M. Sreenivasan, Principal (Retd.), S.N. College, Quilon.

2. Keshari, Poonam. *Gandhi jee ke darshan mein shakti ka sidhant.* BHU. Dr. C Padia, Department of Political Science. Banaras Hindu University, Varanasi.

3. Latha, R. *Participation of women in Kerala politics.* Kerala. Dr. T. Varghese, Lecturer, St. John's College, Anchal, Quilon.

4. Pandey, Lave Kush. *Rashtriya andolan aur Doctor Bhagawan Das.* BHU. Dr. H.N. Tripathi, Department of Political Science, Banaras Hindu University, Varanasi.

5. Singh, Uma Shankar. *Gandhi darshan mein vikendriyakaran kee avdharana.* BHU. Dr. R P. Pathak, Department of Political Science, Banaras Hindu University Varanasi.

6. Sudha, K. *Administration of collegiate education in Kerala.* Kerala. Dr. P. Vijayaraghavan, Principal (Retd.), S.N. College, Quilon.

Economics

1. Agrawal, Vibha Rani. *Growth of small scale industries.* BHU. Dr. (Mrs.) M. Srivastava, Department of Economics, Banaras Hindu University, Varanasi.

2. Krishna Gopal. *An analytical study of Central State Fiscal relations in India, 1951-90.* BHU. Prof. U.K. Mehra, Department of Economics, Banaras Hindu University, Varanasi.

3. Manjeet Singh. *Automobile industry of India*. BHU. Dr. A.K. Jain, Department of Economics, Banaras Hindu University, Varanasi.

4. Mishra, Anant Prasad. *Indo-Bangladesh economic relations*. BHU. Dr. M.P. Singh, Department of Economics, Banaras Hindu University, Varanasi,

5. Naziri, Mohammad Kazem, *Control theory : Statistical modelling in economic planning.* BHU. Dr. P.K. Chaubey, Department of Economics, Banaras Hindu University. Varanasi.

6. Pandey, Rajendra Kumar. *Economics of milk production in Varanasi District*. BHU. Dr. M.P. Singh, Department of Economics, Banaras Hindu University, Varanasi.

7. Rajesh Kumar. *Commercial policy of Nepal*. BHU. Dr. M.P. Singh, Department of Economics, Banaras Hindu University, Varanasi.

8. Senger, Alok Pratap Singh. *Role of primary co-operative societies in development of agriculture in Ajitnal Block of Itawa District*. BHU. Prof. G.S. Kushawaha, Department of Economics. Banaras Hindu University, Varanasi.

9. Shahi, Ram Pal. *Role af co-operative banks in the agricultural development of Deoria District*. BHU. Dr, Rajendra Rai, Department of Economics, Banaras Hindu University, Varanasi.

10. Singh, Dileep Kumar. *Bihar ke karetar rajaswa sansadhan*. BHU. Dr. Rajendra Rai, Department of Economics, Banaras Hindu University, Varanasi.

11. Singh, Suresh Kumar. *The effects of new technology on the Maize crop production in Jaunpur District : A case study*. BHU. Dr. R.P. L. Jain, Department of Economics, Banaras Hindu University, Varanasi.

12. Srivastava, Sarita. *Role of Nabard in financing agriculture*. BHU. Dr. (Mrs.) M. Srivastava, Department of Economics, Banaras Hindu University, Varanasi.

13. Srivastava, Sushil Kumar. *A study of economic efficiency of different systems of irrigation in Eastern U.P.* BHU. Dr (Mrs.) M Srivastava, Department of Economics, Banaras Hindu University, Varanasi.

14. Suman Kumar. *Pashchimi Champaran Jile ke krishi vikas mein sehakari sakh kee bhumika*. BHU. Dr. A.R. Prasad, Department of Economics, Banaras Hindu University, Varanasi.

15. Varma, Sushma. *Role of lead banks in financing agriculture*. BHU. Dr. (Mrs.) M. Srivastava, Department of Economics, Banaras Hindu University, Varanasi.

Law

1. Gahlaut, Pradeep Bahadur Singh. *Bounded labour in India (Socio-legal study) with special reference to Bounded Labour System Act, 1976*. BHU. Dr. Yogendra Singh. Department of Law, Banaras Hindu University, Varanasi.

2. Jaiswal, Birendra Kumar. *Taxation of house property income under the Income Tax Act, 1961*. BHU. Prof. M.C. Bajawat, Department of Law, Banaras Hindu University, Varanasi.

3. Tiwari, Chaturbhuj Nath. *Legal aspects of land reforms measures in U.P.* BHU. Shri S K. Verma, Department of Law, Banaras Hindu University, Varanasi.

Public Administration

1. Verma, Purushottam. *Panchayati Raj karyakaran aur ubharta huya netritva pratiman : Ek mulyankan*. HS Gour. Dr. S B. Srivastava, Lecturer, Department of Political Science and Public Administration, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

Education

1. Agrawal, Seema. *A comparative study of learning disabilities of general and disabled students of secondary classes*. BHU. Dr. S.B. Bhattacharya, Department of Education, Banaras Hindu University, Varanasi.

2. Sabhrawal, Sandhya. *Role of aesthetic education in the development of human potentialities*. BHU. Prof. T S. Rao, Department of Education, Banaras Hindu University, Varanasi.

3. Singh, Binod Kumar. *A study of the accountability of post-graduate college teachers of Eastern U.P.* BHU. Dr. P.N.S. Yadav, Department of Education, Banaras Hindu University, Varanasi.

Commerce

1. Avnindra Mohan. *Income management in public enterprises : A case study*. BHU. Dr. S.P. Srivastava, Department of Commerce, Banaras Hindu University, Varanasi.

2. Mundra, Damodar Das. *Personal taxation in India since independence*. *D. Litt*. Devi Ahilya.

3. Resia Beegam, S. *A study of the problems of women entrepreneurs in Kerala*. Kerala. Dr. M. Sarngadharan, Reader, Department of Commerce, University of Kerala, Trivandrum.

4. Silawat, Suresh Kumar. *Madhya Pradesh ke pichhre kshetron ke arthik vikas mein Madhya Pradesh Vitt Nigam ka yogdan : Dakshin Pashchim Madhya Pradesh ke vishesh sandarbh mein*. Devi Ahilya. Dr. B S. Bhandari, Asstt. Prof., Department of Commerce, Govt. Arts and Commerce College, Indore.

5. Zaja Joseph. *Production problems of selected large and medium scale manufacturing industries in Kerala* Kerala. Dr. S. Kavin, Lecturer, Institute of Correspondence Courses, University of Kerala, Kariavattom.

HUMANITIES

Philosophy

1. Singh, Rabindra Nath. *Vidur ke achar darshan*. BHU. Dr. D.B. Chaube, Department of Philosophy, Banaras Hindu University, Varanasi.

Religion

1. Dube, Rajendra. *Vyavhar prakriyayam vadswarup vimarsh*. BHU. Dr. Satya Narayan Pandey, Department of Dharamshastra and Mimansa, Banaras Hindu University, Varanasi.

Fine Arts

Drawing & Painting

1. Bhavsar, Alok. *Swatantroyttar kal mein Indore kee chitrakala ke vikas ka adhyayan : 1947-1990 tak*. Vikram.

Dr. R.C. Bhavsar, Asstt. Prof., Department of Drawing, Madhav College, Ujjain.

2. Patel, Prakash Chander. *Salumbar (Mewar) ke bhittichitra : Ek alochanatmak adhyayan.* Vikram. Dr. Shri Krishan Joshi, 17, MYB, Muninagar, Sanber Road, Ujjain.

3. Vishwakarma, Madan Gopal. *Symbolism in medieval Indian art.* BHU. Dr. M.N.P. Tiwari, Department of History of Art, Banaras Hindu University, Varanasi.

Music

1. Arundhathi, B. *The concepts and applications of sruthis and gamakas in South Indian classical music.* Kerala. Dr. (Mrs.) K. Omanakutty, Head, Department of Music, Govt. College for Women, Trivandrum.

2. Meera, U. *Music in the Asttakathas of Irayimman Thampi : A structural study.* Kerala. Dr. (Mrs.) K. Omanakutty, Head, Department of Music, Govt. College for Women, Trivandrum.

Language & Literature

English

1. Nirupma. *Alienatian techniques in the plays of Thornton Wilder.* HP. Dr. B.S. Pathania, Department of English, Himachal Pradesh University, Shimla.

2. Sharma, Sophia. *The four facets of frailty : A comparative study of the scarlet letter. the heart of the matter, the slave, samskara.* HP. Dr. Anil Wilson, Department of English, Himachal Pradesh University, Shimla.

Sanskrit

1. Maya, C.S. *The contribution of Kerala to Sanskrit grammar.* Kerala. Dr. T. Bhaskaran, Oriental Research Institute and MSS Library, Kariavattom.

2. Mishra, Rajendra. *Shatpath brahman mein Indra sameeksha.* BHU. Dr. Viswanath Vamandev, Department of Veda, Banaras Hindu University, Varanasi.

3. Rakesh Kumar. *Vyas shiksha ka alochanatmak adhyayan.* BHU. Dr. A.K. Srivastava, Department of Sanskrit, Banaras Hindu University, Varanasi.

4. Srivastava, Ranjana. *Pramukh Sanskrit shilvar kavyon ka sameekshatmak adhyayan.* BHU. Dr. P.D. Singh, Department of Sanskrit, Banaras Hindu University, Varanasi.

Urdu

1. Akhtar, Nazima. *Ustad Asghar Ali : Abroo hayato khidmad.* Devi Ahilya. Dr. Kishwer Sultan, Asstt. Prof., Department of Urdu, Govt. Girls Postgraduate College, Indore.

2. Anjuman, Ara Khanam. *Tarakki pasand tehrik aur Urdu gazal.* Devi Ahilya. Prof. Abdul Aziz Indori, Prof. and Head, Department of Urdu, Islamia Karimia Degree College, Indore.

3. Mohammad Salman Azazi. *Tabaqat-ush-shoora by Mohd. Bin Sallam Aljumahi Tarjuma aur tahshia.* BHU. Dr. Zafar Ahmad, Department of Urdu, Banaras Hindu University, Varanasi.

Persian

1. Mohammad Ekramul Haque. *Persian poets of Punjab.* BHU. Dr. (Mrs.) S. Akhtar, Department of Persian, Banaras Hindu University, Varanasi.

Arabic

1. Hashim Mohain Ibrahim. *Contribution of Allama Syed Abdullah Shabber towards Tafsir-i-Quran.* BHU. Dr. I.R. Rizvi, Department of Arabic, Banaras Hindu University, Varanasi.

Malayalam

1. Murali, K. *Folk tradition and Malayalam plays : A critical study.* Kerala. Dr. V.S. Ramakrishnan, Lecturer, Department of Malayalam, University of Kerala, Kariavattom.

2. Philomina, S.S. *A stylistic study of the poetic works of G. Sankarakurup.* Kerala. Dr. K. Sukumara Pillai, Department of Malayalam, St John's College, Anchal.

3. Radhakrishnan Nair, S. *Nanthanaarute kathalokam.* Kerala. Prof. S. Guptan Nair, Viswabharathi, Peroorkada, Trivandrum.

Geography

1. Kusum Lata. *Urban settlement and regional development in Eastern U.P.* BHU. Dr. (Mrs.) T.D. Singh, Department of Geography, Banaras Hindu University, Varanasi.

2. Asthana, Durga Prasad. *Transformation of rural habitat in Faizabad District, U.P.* BHU. Dr. B. Dube, Department of Geography, Banaras Hindu University, Varanasi.

3. Mishra, Konhaiyalal. *A geographical appraisal of resource development in Sidhi District, M.P.* BHU. Dr. P.R. Sharma, Department of Geography, Banaras Hindu University, Varanasi.

4. Pandey, Akhilesh Kumar. *Son Command Area Development : A geographical study.* BHU. Dr. S.P. Mishra, Department of Geography, Banaras Hindu University, Varanasi.

5. Raghaw Singh. *Rural development in West Champaran Dist Bihar.* BHU. Dr. B.N. Singh, Department of Geography, Banaras Hindu University, Varanasi.

6. Sharma, Anil Kumar. *Bhadohi mein paryavaran samasaya tatha niyojan : Ek bhougolik servekshan.* BHU. Dr. K.K. Dube, Department of Geography, Banaras Hindu University, Varanasi.

7. Singh, Alakeshwari. *Agro-climatological study of U.P.* BHU. Dr. B.N. Singh, Department of Geography, Banaras Hindu University, Varanasi.

8. Singh, Archana. *Population and environment and its impact on South Mirzapur, Sonabhadra.* BHU. Dr. (Mrs.) M. Agrawal, Department of Geography, Banaras Hindu University, Varanasi.

9. Singh, Mahendra Pal. *Market centres and rural development in Motihari District, Bihar.* BHU. Dr. B.N. Singh, Department of Geography, Banaras Hindu University, Varanasi.

10. Sinha, Kusum. *Role of cities in the development of Magadh plain.* BHU. Dr. (Mrs.) T.D. Singh, Department of Geography, Banaras Hindu University, Varanasi.

11. Srivastava, Jaya. *Environmental management : Basti District.* BHU. Prof. H.H. Singh, Department of Geography, Banaras Hindu University, Varanasi.

12. Verma, Jaya Laxmi. *Changing land scape in rural urban tribal of Varanasi : A geographical analysis.* BHU. Prof. V.R. Singh, Department of Geography, Banaras Hindu University, Varanasi.

13. Yadav, Ramashray Singh. *Rural water supply and related problems in Basti District.* BHU. Dr. Ram Bilas, Department of Geography, Banaras Hindu University, Varanasi.

14. Yadava, Surendra Kumar Singh. *Integrated rural area development of Deegh Block (Gyanpur), Dist. Varanasi : A geographical study.* BHU. Dr. B. Dube, Department of Geography, Banaras Hindu University, Varanasi.

History

1. Ckaturvedi, Suchitra. *Socio-economic history, 1206. 1625.* BHU. Dr. J. Chaubey, Department of History, Banaras Hindu University, Varanasi.

2. Chaube, Om Prakash. *Tughlak kaleen itihas lekhan : Barni Iban Battuta.* BHU. Dr (Smt.) S. Banerjee, Department of History, Banaras Hindu University, Varanasi.

3. Dinesh Singh. *A study af bone ivory. shell objects and tools from excavated sites of Northern India.* BHU. Dr. B.P. Singh, Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, Varanasi.

4. Kasyap, Pawan Kumar. *Unnisavi sadi ke Uttar Pradesh mein press aur janmat.* BHU. Dr. Sumitra Gupta, Department of History, Banaras Hindu University, Varanasi.

5. Mishra, Vinod Kumar. *Role of Shri Prakash in Indian National Movement.* BHU. Dr. K.S. Santha, Department of History, Banaras Hindu University, Varanasi.

6. Pandey, Pramod Kumar. *Role of Acharya Kripalani in Indian politics.* BHU. Dr. A.S. Singh, Department of History, Banaras Hindu University, Varanasi.

7. Rai, Ashok Kumar. *Muslim leadership in U.P. from 1906-1947.* BHU. Dr. (Miss) K.S. Santha, Department of History, Banaras Hindu University, Varanasi.

8. Sharma, Banju. *Nepalese history and culture.* BHU. Prof. (Mrs.) K.K. Gopal, Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, Varanasi.

9. Singh, Ashok Kumar. *Malaviyajee kee samvaidhanik aur rajnitik vichardhara.* BHU. Prof. J.P. Mishra, Department of History, Banaras Hindu University, Varanasi.

10. Singh, Ashok Kumar. *Society and economy of Shahabad Distt., 1901 to 1947.* BHU. Dr. A.S. Singh, Department of History, Banaras Hindu University, Varanasi.

11. Singh, Murari Sharan. *Society and economy of Gaya District, 1901 to 1947.* BHU. Dr. A.S. Singh, Department of History, Banaras Hindu University, Varanasi.

12. Singh Radhe Shyam. *Pracheen chitrakala mein samajik jeewan.* BHU. Dr. T.P. Verma, Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, Varanasi.

13. Singh, Raghubar Dayal. *Sultanet kaleen guptachar vyavastha.* BHU. Dr. (Smt.) S. Banerjee, Department of History, Banaras Hindu University, Varanasi.

14. Singh, Rana Pratap. *Uttar Pradesh kee rajniti mein brampaksha.* BHU. Dr Sumitra Gupta, Department of History, Banaras Hindu University, Varanasi.

15. Singh, Sachchida Nand. *Bihar ke swatantrata sangharsh mein Congress ka natritva, 1920-1947.* BHU. Dr. S.C. Mukhopadhyaya, Department of History, Banaras Hindu University, Varanasi.

16 Singh, Sunita. *A critical study of Afghan historiography.* BHU. Dr J. Chaube, Department of History, Banaras Hindu University, Varanasi.

17. Srivastava, Anoop Kumar. *Acharya Narendra Dev kee samajvadi vichardhara.* BHU. Dr. Sumitra Gupta, Department of History, Banaras Hindu University, Varanasi.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

SOCIAL SCIENCES

Library & Information Science

1. Murthy, S.S. *Design of an online bibliographic information network for a multi unit R & D organisation.* Gulbarga. Dr. S.R. Gunjal, Prof. and Chairman, Department of Library and Information Science, Gulbarga University, Gulbarga.

Psychology

1. Seth, N.K. *A study of the determinants of aptitude for architecture.* Roorkee.

Sociology

1. Bhawdip Singh. *An analysis of the socio-economic concomitants of social forestry in Punjab : A case study of Bhatinda District.* Punjabi. Dr. G.S. Bhatnagar, Department of Sociology, Punjabi University, Patiala.

2. Malik, Partap Singh. *A study of socio-psychological and economic factors affecting murder in Haryana.* HAU.

3. Roy, Sanjay Kumar. *Migration, work and politics in few Calcutta slums.* Delhi.

4. Sharma, Raja Babu. *Sewarat Muslim mahilayon ka samaj shastriya adhyayan : Rohilkhand mandal ke Muslim Bahulya Janpad Rampur mein sewarat Muslim mahilayon ka samaj shastriya adhyayan.* Rohilkhand. Dr. G.C. Kulshrestha, Bareilly College, Bareilly.

5. Singh, Tanshyam Narain. *A study of the impact of Five Year Plans on the economic development of Bihar.* Magadh.

Political Science

1. Basu, Dipali, *Womanhood and the liberal Bengali tradition.* Calcutta.

2. Dubey, Prakash Chand. *The role of France in the Shaba crises, 1977-78* JNU. Prof. Anirudha Gupta, Centre for West Asian and African Studies, Jawaharlal Nehru University, New Delhi.

3. Prem Lata. *Parameters of agrarian reconstruction and modernization in Soviet-Central Asia : A case study of Tajikistan, 1930 1980* JNU. Prof. R.R. Sharma, Centre for Soviet and East European Studies, Jawaharlal Nehru University, New Delhi.

4. Sathyaseelan, P. *Interest groups in higher education :*

Kerala since 1960. Kerala. Dr. K. Raman Pillai, Director, Academic Staff College, University of Kerala, Trivandrum.

5. Sen, Prantosh. *Official non-official relationship in the panchayati raj institutions: A study of the emerging relationship patterns under the new panchayat system in the District of Malda*. NBU.

6. Thakur, Ashwarya Singh. *Swatantrayottar Bhartiya rajniti mein kshetriyavad ka udbhav aur prabhav*. Ravishankar. Dr. S.K. Mishra, Principal, Govt. College, Kasdol.

Economics

1. Archna Rani. *Govind Ballabh Pant Krishi evam Takniki Vishwavidyalaya ka Bhartiya Krishi mein yogdan*. Rohilkhand. Dr. Shama Agarwal, G.D.M.C. College, Moradabad.

2. Balaram Singh. *Life Insurance Corporatian of India : An exercise in the performance appraisal*. NBU.

3. Dhar, Biswajit. *Problems of technology and development in the Indian fertilizer Industry*. JNU. Prof. Prabhat Patnaik, Centre for Economic Studies and Planning, Jawahar Lal Nehru University, New Delhi.

4. Dhayal, Sita Ram. *The role of NAFED in the agricultural marketing system of India*. Rajasthan. Dr. G.L. Gaur, Department of Economic Administration and Financial Management, University of Rajasthan, Jaipur.

5. Ola, Shamsul. *An analysis of disbursement, utilization and realisation of credit in respect of agricultural financing by commercial bank*. Rajendra Agrl.

6. Patankar, Dattatraya Narayan. *Economics of tariff termination : A case study of Maharashtra State Electricity Board (M.S.E.B.)* Nagpur. Dr. M.S. Sunanda Sonarikar, Prof and Head, Department of Economics, Post Graduate Teaching Department, Nagpur University, Napur.

7. Radhakrishna Pillai, K.R. *Financing of small industries in Kerala*. Kerala. Dr. K. Ramachandran Nair, Prof., Department of Economics, University of Kerala, Kariavattom.

8. Rajasekhar. K. *Oldage security and demand for children : A comparative study of pensioners and non-pensioners*. Venkateswara. Dr. (Mrs.) D. Usha Rani, Research Scientist 'A' Department of Population Studies, Sri Venkateswara University College, Tirupati.

9. Rama Mohan Reddy. *A study of growth, structure and performance of Andhra Pradesh public enterprises*. Venkateswara. Dr. K. Narasimhulu, Reader, Department of Economics, Sri Venkateswara University College, Tirupati.

10. Seema Rani. *A study on the communication of home and farm information amongst rural women*. HAU.

11. Vinayaga Murthy, P. *Agricultural modernization and fertility*. Venkateswara. Dr. D. Usha Rani, Research Scientist 'A', Department of Population Studies, Sri Venkateswara University College, Tirupati.

Law

1. Gupta, Vijay Kumar. *Supreme Court of India, 1973-79: An institutional study*. Delhi.

2. Khan, Abdul Alim. *Vicarious liability in Law of Torts with special reference to corparate bodies*. Ravishankar. Dr. B.S. Sinha, 16, Buland Bagh, Lucknow.

3. Mano Devi. *Legal control of air pollution in India*. Delhi.

Public Administration

1. Gyan. *The role of Chief Minister in state administration in Rajasthan*. Rajasthan. Prof. R.K. Arora, B-56, Janta Colony, Jaipur.

Education

1. Chakrabarti, Manas. *To study the organizational climate of secondary schools in West Bengal and to correlate it with other relevant variables*. Calcutta.

2. Cherian, Fr. Jacob. *A study of the association between certain basic language skills in English and achievement in pre-degree common examination*. Kerala. Dr. A. Sukumaran Nair, Harimandiram, Vanchiyoor, Trivandrum.

3. Daniel, Lingampalli. *A study of the implementation of mother t ngue as medium of instruction at higher education level*. Andhra.

4. Rajpal, Raj Kumari. *A comparative study of the concept of and practices for equalisation of educational opportunities in U.K, U.S.A and India*. Kurukshetra.

5. Samma Reddy, P. *A study of knowledge, attitude and practice of pro-service teachers on population issues*. Osmania.

6. Vaidya, Shobha. *Effect of mastery learning strategy on pupils achievement, their self concept and attitude towards Hindi*. Devi Ahilya. Dr. U.S. Choudhary, Department of Education, Devi Ahilya Vishwavidyalaya, Indore.

Commerce

1. Amir Ahmad. *A study of small scale industrial entrepreneurship in Rohilkhand Division*. Rohilkhand. Dr. J.K. Jain, Govt. Raza P.G. College, Rampur.

2. Dube, Sanjeev. *Marketing of chemical fertilizers in Uttar Pradesh*. Rohilkhand. Dr. A.K. Agarwal, Hindu College, Moradabad.

3. Gupta, Vinay Kumar. *A study of state finances with reference to Uttar Pradesh*. Rohilkhand. Dr. N.L. Sharma Bareilly College, Bareilly.

4. Krishnan Ravisundar, Muthu. *Industrialisation of backward regions in Andhra Pradesh : Role of APSFC*. Andhra.

5. Mitra, Minakshi. *The impact of container technology on trade and commercial shipping in the Third World countries with special reference to India*. Delhi.

6. Mittal, Satish, Kumar. *Role of nationalised banks in financing of agriculture in Uttar Pradesh with special reference to Moradabad*. Rohilkhand. Dr. B.N. Chaurasia, Hindu College, Moradabad.

7. Natarajan, K. *A study of utilisation of incentives by small scale industrial units in Madurai District*. Madurai.

8. Van, Vijay. *Problems and prospects of tourism in Uttar Pradesh*. Rohilkhand. Dr. B.P. Kamlesh, Hindu Vollege, Moradabad.

9. Varma, Mukul. *Manpower planning in State Bank of India*, *Rohilkhand*. Dr. N.L. Sharma, Bareilly College, Bareilly.

Home Science

1. Shahin, Tahera S. *A comparative study of impact of home science education in promoting better family as seen in Nagpur City*. Nagpur. Dr. (Mrs.) Asha Patwardhan, Post-Graduate Teaching Department of Home Science, Nagpur University Campus, Nagpur.

Management

1. Gupta, Narender. *Financial management of selected sick cotton textile mills with special reference to Maharashtra*. Kurukshetra.

2. Kesar Singh. *Industrial relations in cotton textile industry in Panjab*. Punjabi. Dr. K.C. Singhal, Reader, Department of Business Management, Punjabi University, Patiala.

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Bachelor's Programmes (full time) in

(i) **Architecture (5 years)—68 seats and**
(ii) **Physical Planning (4 years)—20 seats**

Admission Eligibility : Pass in Senior School Certificate Examination (on completion of the 10+2 pattern, 12 years Course) of Central Board of Secondary Education, New Delhi or any other examination recognised as equivalent with (a) General Science including Chemistry at the 10th Stage, (b) 60 per cent of the aggregate marks or more in English (core or optional), Physics, Mathematics and one more (optional) subject, in which the candidate has secured maximum marks at the 10+2 Stage, (c) 55 percent or more of the aggregate marks in (b) above for candidates belonging to (i) Scheduled Caste, (ii) Scheduled Tribe, (iii) Children/Widows of Armed Personnel killed/disabled in action during hostilities and (iv) Physically Handicapped.

Selection Procedure : Selection for admission to the Bachelor's Programmes in Architecture/Physical Planning will be made through an Entrance Examination comprising : (i) General Knowledge, Scholastic Performance and I.Q. Test (ii) Aptitude Test for Architecture/Physical Planning to be held on 14th, 15th and 16th July, 1990 at the School of Planning and Architecture, New Delhi and at other Selected Centres in Delhi.

Reserved Seats : SC-15%; ST-7½% Children/Widows of Armed Personnel killed/disabled in action 5%*, Physically handicapped-5% and candidates belonging to educationally deficient States-10%* of the total sanctioned intake.

* Applicable to B. Arch admissions only

Master's Programmes (3 Semesters) in

(i) **Planning** with specialisation in Urban Planning, Regional Planning, Environmental Planning, Housing and Transport Planning (open to Architecture/Engineers). Candidates with Master's Degree in Geography/Economics/Sociology/Mathematical Statistics/Economics with mathematics/Mathematics with econometrics and Operational Research are eligible for some of these Programmes.
(ii) **Landscape Architecture** (Open to B. Arch,/B.L.A. and Town and Country Planners).
(iii) **Archtecture with specialisation in Urban Design/Architectural Conservation (open to Architects).**
(iv) **Building Engineering and Management** (Open to Engineers/Architects)

Eligibility : Candidates with 55% of the aggregate marks or more at the qualifying examination (50% in respect of SC/ST candidates). Candidates who are awaiting results of the qualifying examination are also eligible to apply provided they complete the admission requirements by 31st July, 1990.

Scholarships : Rs. 1,800/- per month, subject to terms and conditions prescribed by the Government of India for students admitted to Master's Programmes with valid GATE Score/qualified in the UGC (NET) examination.

Sponsored Candidates : Upto 25% of the sanctioned intake in case of Master's Programme in Building Engineering and Management and upto 50% in respect of other Master's Programmes are open to candidates who fulfil the admission requirements and are sponsored by Central Govt., State Governments, Statutory Organisations as well as public institutions.

Reserved Seats : SC-15%, ST-7-1/2%.

Selection Procedure : Restricted number of candidates based on their academic background will be called for interview to be held on 2nd, 3rd and 4th July, 1990 and selection for admission shall be made on the basis of the performance of the candidates at the interview.

General Information : (i) Medium of Entrance Examination and instruction is English, (ii) Foreign nationals are required to apply to the Government of India through their diplomatic channel's. (iii) For detailed information please refer to the Information Brochure which will be supplied alongwith application form.

IMPORTANT DATES

			Master's Programmes	Bachelor's Programmes
1.	(i)	Issue of Application Forms Commences:		
	(ii)	UCO Bank Branches at Delhi : IPA Extension Counter (I.P. Estate), Defence Colony, Connaught Place, Karol Bagh, against payment of Rs. 50/- in cash (during Banking Hours only)	23-5-1990	1-6-1990
	(b)	By post from the School only against Payment of Rs. 50/- by D.D. on SBI/UCO Bank in favour of School of Planning and Architecture, payable at New Delhi.	23-5-1990	1-6-1990
	(iii)	Last date of issue of Application forms :		
		(a) By post from the School	12-6-1990	21-6-1990
		(b) From UCO Bank Branches	14-6-1990	23-6-1990
2.		Last date for receipt of Application Forms at the School and by Registered post.	16-6-1990	27-6-1990

REGISTRAR

Ministry of Defence

DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION (DRDO)

Advt. No. 025/RAC/90

Applications from highly motivated engineering graduates with bright track record & having aptitude for research and development in Radars, EMI/EMC. Microwave, Gas Turbine, Armament, Computers, Signal Processing, MMW systems & devices, Guidance and Control etc. are invited for the following Fellowship Programmes in DRDO :

(1) **Electronics Fellowship Course** : 50; (UR—39; SC—7 and ST—4.)
(2) **Gas Turbine Technology Fellowship Course** : 10; (UR—7; SC—2 and ST—1.)
(3) **Mechanical Engineering Fellowship Course** : 20; (UR—16; SC—3; ST—1.)
(4) **Senior Fellowship Course in Guided Missiles Techuology Leading to M.E./M. Tech Degree : 30;** (UR—23; SC—4 and ST—3.)

The fellowships at (1), (2) and (3) are tenable at Institute of Armament Technology, Pune for 12 months. Fellowships at (4) are available in various Institutes/universities (mentioned in para 4 below) where the selected fellows would undergo training in specialised courses on successful completion of which they may be absorbed as Scientist 'B' (Central Service, Group 'A' Gazetted. Pay Scale : Rs. 2200-4000) in Defence Research & Development Service (DRDS) and posted to any defence R&D lab located in different parts of the country. Admission criteria and eligibility conditions for each of these fellowship programmes are given in the succeeding paragraphs.

1. ELECTRONICS FELLOWSHIP COURSE
2. GAS TURBINE TECHNOLOGY FELLOWSHIP COURSE
3. MECHANICAL ENGINEERING FELLOWSHIP COURSE

Selected candidates would have to undergo specialised training as Fellows at Institute of Armament Technology, Pune for a period of 12 months. The fellows will have to pass such tests as are prescribed by the Institute.

ELIGIBILITY

Age : Not exceeding 26 years (relaxable by five years in case of SC/ST Candidates and Govt. servants). Age will be reckoned as on 18th June, 1990.

Essential Educational Qualifications : (A) **Electronics Fellowship Course** : At least second class Master's degree in Physics/Applied Physics with specialisation in Electronics or second class Bachelor's degree in Electronics and/or Communication Engineering from a recognised University or equivalent.

(B) **Gas Turbine Technology Fellowship Course: and (C) Mechanical Engg. Fellowship Course** : At least second class Bachelor's degree in Mechanical or Aeronautical Engineering from a recognised university or equivalent.

(Candidates appearing in qualifying examination may also apply. They must send copies of mark sheets upto their last semester examination along with the application and result of last semester examination should be communicated immediately on its announcement to RAC. The candidature of such candidates can be considered only if they acquire essential qualifications by 31st July, 1990).

Candidates must apply separately in respect of each fellowship.

(4) **Senior Fellowship Course in Guided Missiles Technology Areas Leading to M.E./M.Tech Degree** : The fellowships are tenable for a duration of 18 months during which selected candidates would have to undergo specialised courses leading to post-graduate degree at one of the Institutes/Universities in the subject concerned. The candidates should send their applications direct to the University/Institute in which admission is sought.

Eligibility : (a) **Age** : Not exceeding 26 years. (relaxable by five years in case of SC/ST and Government Servants). Age will be reckoned as on 18th June 90. (For Sl No 10. age will be reckoned as on 9 June 90). **Candidates admitted by the Universities/Institutes for their M.Tech. programmes will alone be considered for the award of these fellowships.** All desirous candidates therefore should apply for admission to these Universities/Institutes. Name of Universities/Institutes where these courses are run, number of fellowships, qualification requirements and the addresses at which the applications should be forwarded are give below :

Sl. No.	Name of the University/Institute	No. of Fellowships	Name of the Course	Qualification requirements	Address for forwarding applications
I	II	III	IV	V	VI
1.	Indian Institute of Science, Banalore-560 012	6	Aeronautics, fluid Dynamics, Control, Propulsion	Bachelors's degree in Aero/Mechanical/ Electrical/Electronics/ Computer Science Engg.	Deputy Regsitrar, Indian Institute of Science, Bangalore-560 012

2.	Indian Institute of Technology Madras-600 036.	4	Composite products, CAD/CAM, Propulsion/Aeronautics.	Bachelor's degree in Aero/Mechanical/Electrical/Electronics/Computer Science/Chemical Engg.	Head, FRP Research Centre. IIT Madras 600 036
3.	Indian Institute of Technology, Delhi-110 016	2	MMW system and devices, Signal Processing.	Bachelor's degree in Electrical/Electronics/Computer Science Engg.	Head, Centre for Advanced Research in Electronics, IIT. Delhi-110 016.
4.	Indian Institute of Technology, Kharagpur-721 302.	2	Signal Processing/Micro-wave Engg. Antenna system	Bachelor's degree in Electrical/Electronics/Computer Science Engg.	Head. Deptt. of Electronics IIT, Kharagpur-721 302.
5.	Jadavpur University, Calcutta-700 032.	2	Control & Guidance Software	Bachelor's degree in Aero/Electrical/Electronics/Computer Science Engg.	Head, Deptt of Electrical Engg. Jadavpur University, Calcutta-700 032.
6.	PSG College of Technology, Coimbatore-641 004.	4	CAD/CAM	Bachelor's degree in Aero/Mechanical/Electrical/Electronics/Computer Science Engg.	Vice Principal, PSG College of Technology Coimbatore-641 004.
7.	Indian Institute of Technology, Bombay-400 076	2	Aeronautics/Computer Science & Simulation	Bachleor's degree in Aero/Electrical/Electronics/Computer Science Engg.	Registrar IIT. Bombay-400 076.
8.	Regional Engg. College. Warangal (AP)	2	Electronics	Bachelor's degree in Electrical/Electronics/Computer Science Engg.	Principal, Regional Engg. College Warangal (AP).
9.	MIT, Madras-600 044.	2	Aeronautics/Instrumentation	Bachelor's degree in Aero/Mechanical Engg.	Registrar, MIT, Madras-600 044.
10.	*Institute of Armament Technology	4	Guided Missile	Bachelor's Degree in Mechanical/Aero/Electrical/Electronics Engg.	The Dean & Director, **Institute of Armament Technology, Giri Nagar, Pune-411 025

*ME degree will be awarded by Poona University

**Last date of receipt of applications for Guided Missile Programme at IAT Pune is 9th June 90

General Conditions/Instructions

(1) Candidates working in Government/Public Sector/Autonomous Organisations should apply through proper channel.

(2) Knowledge of German, French, Russian, Japanese or Chinese language is a desirable qualification.

(3) The prescribed essential qualifications are the barest minimum and the mere possession of the same does not entitle candidates to be called for interview. Where the number of applications received in response to an advertisement is large and it will not be convenient or possible for the Recruitment and Assessment Centre (RAC) to interview all those candidates, the RAC may restrict the number of candidates for interview to a reasonable limit on the basis of qualifications higher than the minimum prescribed in the advertisement.

(4) The RAC at their discretion, may hold a written test of candidates applying for Fellowships. No travelling or other allowance will be paid by the RAC for appearing at such written test. Only those qualifying in written test (if held) will be called for interview. TA will be admissible to those who attend the interview.

(5) The number of Fellowships mentioned is tentative and may change.

(6) Application should be sent on the plain paper in the format given below (to be typed in A-4 size paper 210 mm x 297 mm) accompanied by a crossed non-refundable current Indian Postal Order of the value of Rs. 8.00 drawn in favour of Senior Accounts Officer, Recruitment & Assessment Centre, Defence Research and Development Organisation, payable at New Delhi. There is no fee for Scheduled Caste/Scheduled Tribe candidates.

(7) Self-attested copies of certificates in support of the educational qualifications, experience etc. must be attached with the application. Those who are appearing in the qualifying examinations MUST enclose copies of certificates of examinations upto last semester. Candidates will have to produce Original Certificates during interview as proof of details furnished by them in the application.

(8) The application should be accompanied by two self-addressed unstamped covers of 23 cm x 10 cm size.

(9) Only typewritten applications will be accepted. Incomplete applications will be rejected and no correspondence will be entertained in this respect. Separate applications alongwith requisite postal orders should be sent for each fellowship course.

(10) Only Indian nationals need apply.

(11) The applications should be sent to Director, Recruitment and Assessment Centre, Lucknow Road, Timarpur, Delhi-110 054 preferably by Registered Post in a cover superscribed "Application for—Fellowship Programme" for Fellowships at items (1), (2) & (3) only alongwith requisite Postal Orders.

(12) Candidates for SENIOR Fellowship Scheme at item (4) should send their applications alongwith requisite Postal Orders direct to the Institute to which they would like to seek admission in the M.E /M.Tech. Programme (addresses have been given above under Column V of table). Postal Orders however should be in favour of Senior Accounts Officer, RAC, DRDO, New Delhi-110 011.

(13) Last date for receipt of applications is **18th June, 1990.** Last date for receipt of applications for candidates from Andaman and Nicobar, Lakshadweep island and abroad is **2nd July, 1990.**

(14) CANVASSING IN ANY FORM WILL BE DISQUALIFICATION.

(15) Selection : Selection will be on the basis of a test and/or interview.

(16) Stipend & Salary : During training, the trainees will be paid a consolidated stipend of Rs. 2000/- for fellowships at 1, 2 and 3. The fellowship amount for IGMDP Fellowship (at S No. 4) is Rs. 2000/- per month presently but is likely to be revised upwards. In addition, book allowance would be admissible. They may be given suitable hostel accommodation during the period of Fellowship on payment of rent as per rules. On successful completion of the training, candidates would be placed in one of the Laboratories/Establishments as Scientists 'B' in the scale of Rs. 2200-75-2800-EB-100-4000. The approximate total emoluments (ATE) at the minimum of the scale vary from Rs. 3036/- to Rs. 3586/- per month depending upon the place of posting. In addition, advanced increments may be given in deserving cases depending on the performance during the training.

(17) For instructional tours and summer training in the DRDO establishments, the Fellows will be entitled to TA/DA as admissible to Central Government Group 'A' Officers drawing a basic pay of Rs. 2200/- in the scale of Rs. 2200-75-2800-EB-100-4000.

(18) During the operation of the Fellowship Scheme, the Fellows will be required to pass all tests/examinations which are prescribed by the Institute. Those who are not able to pass such tests/examinations and do not successfully complete the training shall not be considered for appointment to the grade of Scientist 'B'.

(19) Bond : Candidates will be under contractual obligation to serve the Defence Research & Development Organisation for a period of three (3) years, after completion of training. During training the candidates will not be permitted to apply/appear for any interview/selection/examination.

(20) Promotion Prospects : DRDO offers excellent opportunities for career advancement as Scientists. Result oriented and highly motivated scientists can look forward to promotion to the following grades :

Scientist 'C' : Rs. 3000-4500
Scientist 'D' : Rs. 3700-5000
Scientist 'E' : Rs. 4500-5700
Scientist 'F' : Rs. 5100-6300
Scientist 'G' : 5900-7300

Promotion in DRDO depends upon merit and performance and is not linked to availability of vacancies.

(21) Candidates have the liability to serve anywhere in India.

PROFORMA APPLICATION

APPLICATION FOR FELLOWSHIP COURSE IN ____________________

*(To be indicated out of EFC/GTIC/Mech. Engg/IGMDP)

Affix Passport size latest Photograph

1. Name in full (Shri/Smt/Km)
   (in BLOCK LETTERS)
2. Title of Fellowship :
3. Name of the Institute/University if admission is being sought for IGMDP Fellowship
4. (a) Date of Birth :
   (in Christian era in figures)
   (b) Age as on 18 June 1990
5. Nationality :
6. Martial Status :
7. Father's/Husband's name :
8. (a) Address for correspondence :
   (in block letters with PINCODE)
   (b) Permanent address
   (in block letters with PINCODE)
9. Details of Postal Order (No. Date & Amount)
10. Nearest Railway Station :
11. Whether belong to SC/ST :
    (If yes, attach certificate)
12. Educational Qualifications :
    In chronological order from X standard (SSLC/HS/HSC) onwards

Sr. No.	Course Passed	University/ Institution/ Board	Year of Passing	Subject taken	Exact Percentage of Marks	If appeared at qualifying exam. exact percentage of marks upto last semester

13. (a) Are you a Govt. servant ; Yes/No.

(b) If yes, whether in Central/State/Union Territory Govt. (write clearly)

14. Professional Training

Organisation	Period		Details of Training
	From	To	

15. (a) Are you qualified at GATE 90 :
(b) If qualified, please give the percentile score :

16. Employment Record :

Name & addrss of employer	Period of service From To	Designation of the post held	Scale of pay	Detailed description of work*	Reason for leaving

*Separate sheet may be attached, if necessary.

17. Minimum joining time required :
18. Field of Special Interest :
19. List of Papers Published :
20. Are you under any contractual obligation to serve Central/State Govt./PSU/Autonomous Body ? If so, give details :
21. Details of relatives already employed in DRDO :

Name of Relatives	Relationship	Lab Estt. in which employed	Post held

22. Have you applied for any post in DRDO during the past two years ? If yes, give particulars :

Sr.No.	No. and Date of Advt.	Name of Post/Discipline	Date of Interview	Remarks

23. Any other information you may wish to add (Use separate sheet if necessary)
24. Declaration.

I declare that the foregoing information is correct and complete to the best of my knowledge and belief and nothing has been concealed/distorted. If at any time, I am found to have concealed/distorted any material information, my appointment shall be liable to summary termination without notice/compensation. I will, if and when required, take up duty in the discharge of government assignments anywhere in India

Place :
Date :

Signature of Candidate

davp 90/71

Indian Institute of Education, Pune-29

Centre For Educational Studies

Applications are invited for admission to M. Phil. course Education (Interdisciplinary) of the University of Poona, for the academic year 1990-91.

Admission to this course are open to holders of Master's degree with a good class, preferably in Social Sciences or in Education. Provisional admission will be given to selected candidates who have appeared for the final Master's degree examination of a statutory University but the results of which are not immediately available. Admissions will pe based on a written test in the subject offered by the candidates at the Master's level to be followed by an interview.

The Course would ordinarily commence from the second week of July, 1990. Application forms and other information will be supplied on request and on payment of Rs. Ten either in cash or by I.P.O. drawn in the name of the Director, Indian Institute of Education, Pune. The applications duly completed and with copies of testimonials should reach the Director on or before **12th June, 1990.**

Date :12th May, 1990

DIRECTOR

CLASSIFIED ADVERTISEMENTS

BHARATHIAR UNIVERSITY : COIMBATORE-641 046

ADVERTISEMENT NO. 8970/90, DATED : 8-5-1990

Applications are invited for the following posts :

	No. of Posts	Specialisation
1. DEPARTMENT OF MATHEMATICS		
Professor	1 (SC/ST)	Computer Mathematics/Programming Languages/Functional Analysis/Optimisation Techniques/Differential Equations / Algebra / Fluid Mechanics/Operations Research.
2. DEPARTMENT OF STATISTICS		
Professor	1 (SC/ST)	Sampling (Theory & Practice) Design of experiments/Statistical Quality control / Reliability/ Statistical Inference.
Reader	2 (OC-1: SC/ST-1)	
3. DEPARMENT OF ECONOMICS		
Reader	1 (SC/ST)	Agricultural Economics/Econometrics/Applied Economics/Industrial Economics
4. DEPARTMENT OF PSYCHOLOGY		
Reader	1 (SC/ST)	Personality
5. DEPARTMENT OF SOCIOLOGY		
Professor	2 (OC-1: SC/ST-1)	Industrial Sociology, Rural Development/ Rural Sociology
Reader	1 (SC/ST)	Urban Sociology/Rural Development/Rural Sociology
6. DEPARTMENT OF POPULATION STUDIES		
Reader	2 (OC-1; SC/ST-1)	Population Economics/ Social Demography Migration/Fertility
7. DEPARTMENT OF LINGUISTICS		
Lecturer	1 (SC/ST)	Language teaching learning methods and Tribal Literacy
Lecturer in English	1 (OC)	Phonetics/Contrastive Linguistics
8. DEPARTMENT OF TAMIL		
Lecturer	1 (SC/ST)	Stylinstics or Tamil Social, Religious and Cultural History/Tamil Journalism and Mass Communication/Kongu Folk Lore/Traditional Tamil Grammer/Tamil culture (Religion, Philosophy Sports, Architecturer, Fine Arts)
9. ACADEMIC STAFF COLLEGE		
Director	1 (OC)	
Lecturer	1 (OC)	
10. BHARATHIAR SCHOOL OF MANAGEMENT & ENTREPRENEUR DEVELOPMENT		
Professor	2 (OC-1; BC-1)	Personnel Management Financial Management
11. EDUCATIONAL TECHNOLOGY		
Reader	1 (OC)	Software planning and production as applied to video-audio Technology (OR) Special Education (OR) Rural Development.
Lecturer	2 (OC-1; SC/ST-1)	
12. BIO-TECHNOLOGY/GENETIC TECHNOLOGY		
Reader	1 (OC)	Molecular genetics, Medical genetics, Biochemistry Molecular biology
Lecturer	2 (OC-1; SC/ST-1)	
13. COMMERCE		
Reader	1 (OC)	Financial Management
Lecturer	2 (OC-1: SC/ST-1)	Marketing Accounting

14. COMPUTER SCIENCE		
Reader	1 (OC)	
15. DEPARTMENT OF ZOOLOGY		
Lecturer	1 (SC/ST)	Embryology/Molecular Biology/Ecology/Animal Physiology
16. DEPARTMENT OF CHEMISTRY		
Professor	1 (OC)	Coordination Chemistry; Transition metal organometallic Chemistry; Metal Carbonyl cluster Chemistry; Theoretical Chemistry; Electron spin resonance spectroscopy; X-ray crystal structure determination

QUALIFICATION AND EXPERIENCE

1. **Professor**
   An eminent Scholar with published work of high quality actively engaged in research. Consistently good academic record with first or second class (not below 55% or 'B' plus) Postgraduate degree in the subject or related subject and a Ph.D. Degree in the subject with not less than 10 years of teaching and/or research experience at the post-doctoral level out of which not less than 3 years should be in a cadre not below that of a Reader and published research work of high standard as evidenced from the reprints or books and experience in guiding research work at Doctoral level as evidenced from the number of Ph.Ds produced.
2. **Reader** (Economics, Psychology, Sociology & Population Studies, Statistics)
   Consistently good academic record with first or second class (not below 55% or 'B' plus) Postgraduate degree in the subject or related subject and a Ph.D. Degree in the subject with not less than 5 years of teaching and/or research experience at the post-doctoral level out of which not less than 3 years should be in a cadre not below that of a Lecturer and published research work of high standard. Evidence of being actively engaged in research and experience in guiding research as evidenced from the number of M. Phils and Ph.Ds. produced.
3. **Lecturer** (English, Tamil, Linguistics, Zoology)
   Consistently good academic record with first or second class (not below 55% or 'B' plus) Postgraduate degree in the subject or related subject and a Ph.D. degree in the subject. Two years of teaching and/or research experience at the Post-doctoral level is desirable.
4. **Director (Academic Staff College)**
   First or Second class Postgraduate degree in either one of the subjects, Education, Adult Education or Psychology and Ph.D. in the same subject. Not less than 10 years of teaching and research experience. Experience in human resources development activities and in organisation and administration of training programmes, workshops and summer institutes.
5. **Lecturer (Academic Staff College)**
   First or second class Postgraduate degree id either one of the subjects, Education, Adult Education or Psychology and Ph.D. in the same subject. Atleast one year Post-Doctoral teaching or research experience.
6. **Reader** (Educational Technology, Bio-Technology/Genetic Technology, Commerce)
   Consistently good academic record with first or second class (not below 55% or 'B' plus) Postgraduate degree in the subject or related subject and a Ph.D. Degree in the subject with not less than 5 years of teaching and/or research experience at the post-doctoral level out of which not less than 4 years should be in a cadre not below that of a lecturer and published research work of high standard. Evidence of being actively engaged in research and experience in guiding research as evidenced from the number of M. Phils and Ph.Ds. produced.
7. **Lecturer** (Educational Technology, Bio Technology/Genetic Technology and Commerce)
   Consistently good academic record with first or second class (not below 55% or 'B' plus) Postgraduate degree in the subject or related subject (a Ph.D. degree in the subject desirable). Two years of teaching and/or research experience at the Post-doctoral level is desirable.
8. **Reader**—Computer Science
   A consistently good academic record. A Ph.D. from an Indian or a Foreign University in Computer Science OR Computer Applications Information Systems OR Engineering with specialisation in Computer Applications and Information Systems and 5 years of Teaching/Research Experience in the field of Computer Science or Computer Applications.

   OR

   A first class in M.E./M. Tech. with Computer specialisation or MCA with 5 years of Teaching/Research Experience in the field of Computer science or Computer Applications.

   OR

   A First class in M.E./M. Tech with specialisation in Applied Electronics or Electronics & Communication Engineering with 5 years of experience in Teaching/Research in the field of Computer Science or Computer Applications.

Candidates with research interest in Systems Support/DBMS/Experience in Software design would be preferred.

Other qualifications according to UGC norms

Scale of Pay : Rs. 4500-150-5700-200-7300 : Professor
Rs. 3700-125-4950-150-5700 : Reader
Rs. 2200-75-2800-100-4800 : Lecturer

The University reserves itself the right to short-list of applicants for interview and to fill or not to fill any or all of the above posts.

Application forms can be had from the Registrar, Bharathiar University, Coimbatore 641 046 on requisition accompanied by a self-addressed Rs. 1-40 paise stamped envelope (25 x 10 cm). Attested copies of certificates showing qualifications, age, community, experience, etc., should be sent along with the application in the prescribed form (in eight copies) together with Registration fee of Rs. 25/- in the form of crossed Indian Postal Order dated not earlier than 2-5-1990 drawn in favour of the Registrar, Bharathiar University, Coimbatore 641 046.

Any candidate applying for more than one post shall submit separate applications for each post.

Candidates in service shall submit their application through proper channel,

Completed applications should reach the Registrar on or before **June 8th, 1990.**

Incomplete applications and applications without the required registration fee will not be considered.

REGISTRAR

ARUNACHAL UNIVERSITY

ITANAGAR

Advertisement No. EG/157/87 **Dated : 4 May, 1990**

Applications on prescribed form are invited from the citizens of India for the following posts :

Sl. No.	Name of posts	Department	No. of posts	Pay Scale
1.	Professor	English	1	Rs. 4500-150-5700-200-7300/-
2.	Reader	English	1	Rs. 3700-125-4950-150-5700/-
3.	Lecturer	English	3	Rs. 2200-75-2800-100-4000/-
4.	Lecturer	History	1	Rs. 2200-75-2800-100-4000/-
5.	Lecturer	Pol. Science	1	Rs. 2200-75-2800-100-4000/-
6.	Asstt. Registrar	—	1	Rs. 2200-75-2800-100-4000/-
7.	Asstt. Librarian	—	1	Rs. 2200-75-2800-100-4000/-
8.	Stenographer Gr. I	—	1	Rs. 2000-60-2300-EB-75-3200/-
9.	Stenographer Gr. II	—	2	Rs. 1400-40-1800-EB-50-2300/-

Minimum Qualifications

Professor : An eminent scholar with published work of high quality actively engaged in research. About ten years experience of teaching and/or research. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge.

Reader : Good academic record with 1st or 2nd class (not below 55% or 'B' plus) post-graduate degree in the subject and a doctoral degree in the subject/equivalent published work with not less than 5 years of teaching/research experience out of which not less than 3 years should be in a cadre not below that of a lecturer.

Lecturer : Consistently good academic record with 1st or 2nd class (not below 55% or 'B' plus) post graduate degree in the subject.

Asstt. Registrar : 2nd class Master Degree with at least 55% marks or its quivalent grade, with 3 years experience or Bachelor's Degree with 5 years experience in an office/institution out of which at least 2 years should be in the capacity not below that of a Section Officer.

Asstt. Librarian : Master Degree in Library Science or equivalent Degree with at least 55% marks or equivalent grade.

Or

Master Degree in Arts/Science/Commerce or its equivalent with at least 55% marks or its equivalent grade and Bachelor's Degree in Library Science or equivalent degree.

Stenographer Grade I : Bachelor Degree with not less than 150 w.p.m. in shorthand and 45 w.p.m. in typing. Working Grade II Steno with minimum 5 years office experience may also apply.

Stenographer Grade II : Bachelor Degree with not less than 120 w.p.m. in shorthand and 40 w.p.m. in typing. Working Grade III steno with minimum 5 years office experience may also apply.

(i) Specialisation for Reader/Lecturer in English

Candidates with special paper in Master Degree on American Literature/Indo Anglian Literature will be given preference,

(ii) Specialisation for Lecturer in Pol. Science

Public Administration/comparative Political system/Research Methodology.

(iii) Specialisation for Lecturer in History

Special papers on Mediaeval India/Non-Indian History

The University reserves the right not to fill-up all the posts advertised. The University also reserves the right to negotiate with suitable person or persons, if necessary, who may not have applied formally.

Age : For Posts at Sl. No. 1 to 6 maximum age as on 1.6.90 should be 35 years. For post at Sl. No. 7 maximum age is 30 years and Sl. No. 8 and 9 maximum age is 28 years as on 1.6.90.

The posts are temporary at present but likely to continue. Candidates appointed will be provided with rent-free accommodation.

Application form and fees

Application should be made on plain paper (three copies) in the format given. Application for the posts at Sl. No. 1 to 7 must be accompanied by an application fee of Rs. 20/- (Rs. 10/- in case of SC/ST candidates). Applications for other posts must be accompanied by an application fee of Rs. 10/- (Rs. 5/- in case of SC/ST candidates). I.P.O. or Bank Draft payable to the Registrar, Arunachal University, Doimukh, is acceptable. Applications should be sent under double cover—inner cover should be sealed and superscribed "Application for the post..................." and outer cover should contain the address of the Registrar, Arunachal University, Doimukh-791 112.

Persons in employment should apply through proper channel or attach 'No Objection Certificate' from the employer.

Interview—Candidates may be required to appear at an interview as and when called for at the place to be communicated later.

Last date for receiving of application :—The applications will be received by the undersigned upto 5th June, 1990 only. Application should be accompanied with attested/photo copies of required certificates/mark sheets etc. Incomplete applications will not be entertained. The format of the application form is given below :

The format of the application form

1. Name
2. Date of birth
3. Father's/Husband's name
4. Address
5. Name of post applied for
6. Educational Qualifications (with the year of passing and percentage of marks/class) (onward from 10+2 or equivalent)
7. Employment with the name of employers, Remuneration and period
8. Research experience and List of Publications. (Not applicable for the posts of Stenographer)
9. Any other experience which fits with the requirements of the job
10. Professional Membership and any other distinction. (Not applicable for posts of Stenographers)
11. How do you think you are a fit candidate for a challenging Teaching and Research position at this University ? (Not applicable for the posts of Stenographers)
12. No. and Names of the Testimonials attached
13. Names and Addresses of two referees who are/were connected with your Academic/Professional work. (Not applicable for the posts of Stenographers)
14. No. Date and Place of issue of the Postal Order/Bank Draft.

(Please use additional sheets of paper wherever needed and send copies of one or two Research publications which you consider to be the most important. Application should be neatly typed.)

Date :

Place :

Signature of the Applicant

Dr. J. Nath
REGISTRAR

Post-Graduate Institute of Medical Education & Research, Chandigarh

ADMISSION NOTICE NO. 10/90 (ACAD)

Last Date for the Receipt of Applications is 11th June, 1990.

Applications, on the prescribed form, are invited for the following post-graduate courses for the academic session starting from 1st July, 1990 :

I. Ph.D. PROGRAMME

Vacancies exists in the following departments :

Anaesthesia, Biochemistry, Biophysics, Cardiology, Community Medicine, Dermatology, Endocrinology, ENT, Experimental Medicine, Gastroenterology, Haematology, Immunopathology, Internal Medicine, Obstt. & Gynae, Paediatric Surgery, Parasitology, Pharmacology, Psychiatry (including clinical Psychology) and Radiotherapy.

II. D.M. (ENDOCRINOLOGY)—1 seat

III. M.Sc. BIOCHEMISTRY—5 seats. One reserved for candidates belonging to Scheduled Castes/Tribes.

IV. M.Sc. PHARMACOLOGY—5 seats. One reserved for candidates belonging to Scheduled Castes/Tribes.

V. FIRST YEAR JUNIOR RESIDENTS : 2 (One reserved for Scheduled Castes/Tribes) for the department of Dentistry for a period of six months. Those who have already completed or will complete First Year Junior Residency or House Job for one year by 30th June, 1990 are not eligible.

GENERAL INFORMATION

1. Wherever M.B.B.S./B.D.S. is an eligibility for admission qualifications, candidates other than those belonging to Scheduled Castes/Tribes having more than one failure during M.B.B.S./B.D.S. course are not eligible. Scheduled Castes/Tribes with upto two failures in their M.B.B.S./B.D.S. career will however be eligible to apply.

2. Those applying for the reserved seats must append, with their applications, a certificate from the District Magistrate concerned in support of their claim. No other certificate will be entertained.

3. For the seat for DM (Endocrinology) course only sponsored/deputed candidates will be considered.

4. Application must be accompanied with non refundable fee of Rs. 60/- in the form of postal order drawn in favour of the Director for each of the courses mentioned above.

5. Application form and detailed information are available from the office of the undersigned either personally on payment of Rs. 20/- at the counter from 10.30 AM to 11.30 AM on all working days and 2.30 PM to 3.30 PM on all working days except Saturdays or by post for which the request must be accompanied with a self-addressed envelope size (23 x 10 cms) bearing postage stamps of Rs. 4.50 and crossed postal order for Rs. 20/- drawn in favour of the Director.

O.P. Sharda
REGISTRAR

INDIAN VETERINARY RESEARCH INSTITUTE
IZATNAGAR-243122, BAREILLY (U.P.)

ADMISSION NOTICE 1990-91

A Competitive Written Examination for admission to the Master's and Doctoral Degree Programmes starting from **September, 1990** and **January, 1991** respectively, in the following disciplines, will be held on **Saturday, the 28th July, 1990**, at Bangalore, Calcutta and Izatnagar Centres:

A. Doctoral Programmes [Ph.D.]:

1. Animal Breeding
2. Animal Genetics
3. Animal Nutrition
4. Animal Physiology
5. Biochemistry
6. Animal Science Extension
7. Livestock Products Technology
8. Poultry Science
9. Veterinary Bacteriology
10. Veterinary Immunology
11. Veterinary Gynaecology & Obstetrics
12. Veterinary Medicine
13. Veterinary Parasitology
14. Veterinary Pathology
15. Veterinary Pharmacology
16. Veterinary Public Health
17. Veterinary Surgery
18. Veterinary Virology

Eligibility:

(i) At least 60% marks in aggregate (55% for SC/ST) in Master's Degree Examination in the relevant subject.

(ii) A good knowledge of English is essential.

B. Master's Programmes [M.V.Sc./M.Sc.]:

1. Animal Genetics & Breeding
2. Animal Nutrition
3. Animal Physiology
4. Avian Diseases
5. Biochemistry
6. Biostatistics
7. Biotechnology
8. Animal Science Extension
9. Epidemiology
10. Livestock Production & Management
11. Livestock Economics
12. Livestock Products Technology
13. Poultry Science
14. Veterinary Bacteriology
15. Veterinary Immunology
16. Veterinary Gynaecology & Obstetrics
17. Veterinary Medicine
18. Veterinary Parasitology
19. Veterinary Pathology
20. Veterinary Pharmacology & Toxicology
21. Veterinary Public Health
22. Veterinary Surgery
23. Veterinary Virology

Eligibility:

(i) At-least 60% marks in aggregate (55% for SC/ST) in Bachelor's Degree in Veterinary Science/Dairy Science/Animal Science/Agriculture (with Animal Science as elective)/Life Sciences/Statistics.

How to Apply:

Application form together with the Information Bulletin can be had personally from the University Office of the Institute on cash payment of **Rs. 15/-** at University Counter on any working day between 11.00 A.M. to 1.00 P.M. and 2.00 P.M. to 3.30 P.M. or through post by sending requisition to **The Assistant Administrative Officer (Academic), IVRI, Izatnagar-243122, Dist. Bareilly (U.P.)**, along with a crossed Bank Draft for **Rs. 25/-** for each form, drawn in favour of **Director, IVRI, Izatnagar**, payable at **State Bank of India, CARI Branch (Code No. 7027), Izatnagar**, accompanied by a self-addressed unstamped envelope measuring 28 cmx20 cm.

Note:

(i) 60% marks will be considered equivalent to an OGPA 2.10 out of 3.00; 2.80 out of 4.00; 3.50 out of 5.00 and 7.00 out of 10.00 GPA systems.
55% marks will be considered equivalent to an OGPA 1.94 out of 3.00, 2.58 out of 4.00, 3.23 out of 5.00 and 6.45 out of 10.00 GPA systems.

(ii) Candidates who are appearing in the qualifying examination prescribed for admission to a particular programme, are also eligible to appear in the Competitive Examination provided they submit final Marks Sheet/PDC for Master's and Doctoral Programme by **21.7.90** and **30.11.90** respectively, otherwise they will stand disqualified.

(iii) A candidate may indicate two disciplines of his choice in order of preference in the column provided in the Application form according to the eligibility qualifications.

(iv) 15% and 7.5% seats are reserved for SC and ST candidates, respectively.

(v) The SC/ST candidates called for Written Examination will be paid travelling allowance limited to IInd Class Railway fare both ways on production of **Caste Certificate** and evidence of journey performed.

(vi) Final selection will be based on academic career and performance in the Competitive Examination.

(vii) The venue, date, and time table for examination are available in the Information Bulletin.

(viii) No. of Seats: 10-15 seats are available in Biotechnology and 3-5 seats in rest of the disciplines.

(ix) Financial assistance in the form of IVRI Fellowship (Junior/Senior) shall be offered to the selected students on certain terms and conditions.

(x) Application forms will be issued from **1.6.90**.

(xi) Last date for receipt of requisition for supply of application forms is **30.6.90**.

(xii) Last date for receipt of the application forms duly filled in (without late fee) is **30.6.90**.

(xiii) Last date for receipt of the application forms duly filled in (with late fee of Rs. 50/-) is **5.7.90**.

S.R. Kashyap
REGISTRAR

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ONDAY, MAY 28, 1990

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PGI Convocation

DIRECTOR
PRESIDENT

Shri Nilamani Routray, Union Minister of Health and Family Welfare & President of the Postgraduate Institute of Medical Education and Research, Chandigarh, delivered the convocation address at the XX Convocation of the Institute. He is flanked by Prof. P.L. Wahi (left), Director and Prof. B.N.S. Walia (right), Dean of the Institute.

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

Teacher Education in India

Futurological Perspective

S.P. Ruhela*

[I]

Need of Futuristic Perspective

In his inspiring book *The Tough-minded Optimist*, Norman Vincent Peale quotes a two-sentence speech delivered by Charles F. Kettering, the famous scientific genius of General Motors Company, USA at a dinner in Cleveland to celebrate the 150th Anniversary of Ohio's admission to the Union as a state :

> "I am not interested in the past. I am interested only in the future for there is where I expect to spend the rest of my life."[1]

And with that Kettering sat down amidst applause.

The first teacher training institution in the form of normal school was established in Calcutta in 1847.[2] That means, in this National Seminar on Teacher Education we are celebrating the 143rd anniversary of the establishment of teacher education in India. The message of Kettering holds true for each of the teacher educators who have come from the nook and corners of our country to participate in this momentous seminar.

In a thrilling article "New Ideas for the 1990's" published in *Span* magazine (January, 1990), the author Brian Dumaine has aptly remarked :

> "....tomorrow's leader will have to have a vision. Yes, you have heard the word before, but in the decade ahead it will become more important."[3]

As leaders of teacher education in India, we have to grasp this message. While discussing the various facets and problems of teacher education we should, of course, take a realistic note of the realities of the past and the present, but we must not be bogged down with them alone. We must think ahead like 'visionaries', like futurists. "The future can't be predicted...but it can be invented."[4]

[II]

Three Probable Futures

There may be countless possible futures for teacher education in our country, but in my view there can be only three broad probable futures for it :

[Paper presented at the National Seminar on Teacher Education : Retrospect and Prospects held at Banaras Hindu University, Varanasi, 1990].

**Professor of Education, Jamia Millia Islamia, New Delhi-110025.*

Future Scenario 1

The existing ritualistic, ill-conceived, disorganised, anomie (normlessness)-ridden and dysfunctional model of our teacher training institutions may continue unabated and the existing problems and malaise in all their diversities and intensities may grow further in future.

Future Scenario 2

There may be reform or radical improvement in the organization, curriculum and functioning of teacher education institutions—Teacher Training Colleges as well as University Departments of Education, through stricter control of NCTE (National Council for Teacher Education), implementation of system of accreditation for them, and earnest implementation of curricular guidelines given by the NCTE, and a more vigorous and efficient organization of 'MOST' (Mass Orientation of School Teachers) and of 'Reorientation of Teacher Educators.'

Future Scenario 3

New inventions and innovations in the organizational set up, curricula, teaching and learning strategies model, training institution—community relationship etc., may take place in keeping with the demands of :

(i) the future Indian society and its economy;
(ii) the latest developments in the field of teacher education;
(iii) the demands of non-formal education, productive work in the form of cottage industries; formal education;
(iv) the application of hardware and software technology of education;
(v) the demands of the moral and spiritual renaissance; and
(vi) trends of social and industrial changes in the super-industrial society of the future world.

Out of these probable future scenarios, which one shall we prefer ?

There are very strong indications that since teacher education has now become a roaring profit making business of many private entrepreneurs, politicians and communities who run B.Ed. and Nursery Training Institutions in all states and of some open universities which enrol thousands of B.Ed. and M.Ed. candidates in their correspondence courses and these entrepreneurs and universities enjoy patronage of greedy politicians, the first scenario may be a reality in future. It is likely that the university departments of education with their usual problems—late and unscrupulous admissions, ritualistic practice-teaching programme, theory teaching in pressure cooking conditions and the mockery of SUPW and the like, may go on functioning as it is even in the next ten years. Hopefully, none of the teacher educators would prefer to have this scenario of future.

The second scenario, as projected by the revised Teacher Education Curricular Framework Approach Paper of 1989 (NCTE), surely deserves to be given a fair trial for the best brains in the field of Teacher Education in the country have been involved in preparing it keeping in view the global trends in Teacher Education as well as the needs of the Indian society. However, in my assessment the emergent problems of the Indian society, its futurological perspective, have not been very perceptibly thought of while developing this scenario. By and large, the scenario does not seem to take due note of the wider and pragmatic spectrum of our future society. Also, it seeks to reform the teacher education curricula alone; it does address itself to the vital task of the organizational change and innovation, teaching and learning innovations, and value-overhauling and over-all functionality of teacher education to the Indian society in future.

The third scenario will have to have two essential features : one, introduction of innovations and inventions in teacher education, and, two, serious attempt to make teacher education functional to the demands o the society and economy of the future Indian society. This would involve overhauling or restructuring of the organisational set up, curricular strategies and contents, taking advantage of the latest ideas and innovations in management, technology, education and social sciences of the future.

[III]

Future India : Some Scenarios

Let us take note of some of the important scenarios about the various aspects and problems of the future Indian society given by our leading thinkers :

(1) Professor M.N. Srinivas, India's leading sociologist, in his brilliant paper 'On Living in a Revolution' included in the volume *India 2000 : The Next*

6 JUN1990

Fifteen Years, gives two future scenarios for the Indian society :

(i) "A depressing scenario for the future concerns the conflict between dominant, land-owning castes and scheduled castes. This is likely to become increasingly violent and hitter, and will be a primary arena for the struggle for equality in India."

(ii) "India has a long way to go before its myriad castes, communities and ethnic groups are transformed into an integrated nation. But an integrated India will not result in cultural homogenization for it must be repeated that India is and remains a multilingual, multireligious, multiethnic, and multicultural society, far more like western Europe than any of its constituent states."[5]

(2) Professor Ashish Nandi, eminent political scientist and futurologist associated with the Centre for the Study of Developing Societies, Delhi has given this scenario :

> "No, India will not be developed country by 2001, not even by 3001. The world just does not have that kind of resources. To keep one billion Indians at, say, the American standard of living—which is no longer the highest in the world—we shall have to kill off every other person in the world. Even then it is doubtful if we can live the way the advanced societies do."[6]

(3) Professor A. Rahman, President of the Forum for Science, Technology and Society, New Delhi, gives the following future scenario for India :

> "India would be both a developed country as well as underdeveloped. It would be scientifically and technologically advanced, and a small affluent section of the society would be also culturally advanced. It would be underdeveloped as the vast majority of population would be without education and below poverty line and culturally backward. The efficiency of functioning of systems would be seriously effected because of the latter situation."[7]

(4) Political scientist, Professor C.P. Bhambhri in his article 'Democracy and Secularism : Two Sides of the Same Coin' says :

> "A very significant threat to Indian democracy is posed by the various religious groups who do not accept secular democracy and its framework. India is involved in a basic struggle to strengthen and safeguard secularism because a section of Indians can be manipulated on the basis of their religious beliefs."[8]

(5) According to the NBO (National Building Organization), there is already a shortage of nearly 25 million housing units in India. If the trend continues, the shortage will increase to 33 millions in 1955 and 39 millions in 2000 A.D.[9]

(6) The number of educated unemployed in India is expected to reach a staggering figure of 24.2 million by the end of 1990 itself;[10] by 2000 AD how much will it be one can't even imagine.

(7) Famous economist, educationist and futurist, Dr. Malcolm A diseshiah in his booklet "*Indian Education in 2001*" has given scenarios for 2001 AD[11] fifteen years back :

> "*Population* : The mortality rate is likely to fall from 15 to 9.6 per thousand of population. The population in 2001 will be 945 millions.
>
> *Production Structure* : We will still be an agricultural society.
>
> *Poverty Profile* : By 2001 our poverty group will just be reaching the minimum consumption of Rs. 500 per person per annum.
>
> *Education* : We will need 5 lakh hectares of land for additional schools and universities, and it will not be available.
>
> ...There will be 200 million children in the age group 6-16 and 370 million adults needing education in 2001. There will be need of 45 lakh teachers, and the cost of schooling shall be Rs. 3500 crores (at 1971 prices and salaries) which in fact means much more.
>
> ...The educational system that will be obtaining in 2001 will consist of a reformed formal education sub-system and a non-formal education sub-system.
>
> ...The worst that can happen in these circumstances is for one to open the door of a typical 2001 classroom and, walking into it, find the teacher standing up front and talking. Rather, the changing world would require a new kind of teacher and a new kind of education, moving away from the current art of imparting and acquiring bits and pieces of information and knowledge...the professional educator will, no longer be, or imagine himself to be, the sole purveyor of education.

Schools without walls, polyvalent classes, integrated schools, universities of the air, will be juxtaposed with firms, farms, factories and business houses as education extension agents with their survey, documentation and research facilities. There would be reform of teaching technologies and learning methods. There will be more individualisation of learning and teaching.

Covering the syllabus "should not be held up to him (teacher) as the ideal, as compared to the capacity to deal with a changing future".

(7) India's pioneer futurologist, Dr. S.C. Seth in his thought-provoking write up on "Future-oriented Teacher Education "poses the following five implications of the future before teacher educators of India:[12]

1. (1) Tomorrow's educational client will be a large human system. (How do we communicate and with knowledge mix ?)
2. (2) Educational costs vis a vis accentuating poverty conditions. (Some can pay for education. But there are also millions who have no consumer personality).
3. (3) Educational package for unhomogeneous development. (Agraria, industrial and post-industria).
4. (4) What will be the educational response to a synthesis of value plurality and social fragmentation and emerging individuation, visible in the Indian society ?
5. (5) What and how best can educational overhaul for providing a meaningful response to technological plurality be achieved. (Yesterday's technology vis a vis tomorrow's technology).

Dr. Seth further says :

> "The point that is being stressed here is that the emerging educational profile indicates the need for educational functionaries to come to grips with numerous visible and invisible social forces and developments, in short, to display total understanding of the long range societal implications even if they do not directly stem out of the pedagogical realm."

Dr. Seth has given the following in Appendix I of his paper :

1. Indian Societal Features
2. Likely Future Threats
3. Signals of Future Opportunities/Possibilities
4. Policy Implications for Educational System.

(8) The great spiritual master, Sri Aurobindo envisages the coming of a 'New Humanity' which might be called the beginning of a 'divinised life' or the Supramental manifestation upon earth. He sees altogether a new category of higher life and consciousness in the future race of mankind, "... a new humanity uplifted into Light, capable of spiritualised being and action, open to the governance by some light of the Truth-Consciousness, capable even on the mental level and its own order of something that might be called the beginning of a divinised life."[13] In the New Age there will be no more religions. A new religion would be useless in the age of Supramental creation.

(9) Spiritual master, Sri Sathya Sai Baba has prophesied that the next century will be the era of peace and love, and India will become the spiritual master of the world spreading human values of truth, righteousness, peace, love and non-violance. He has already launched a tremendous global movement of 'Education in Human Values'[14] which is flourishing in over 105 countries of the world and affecting education and teacher education in all these countries including our's of course.

[IV]

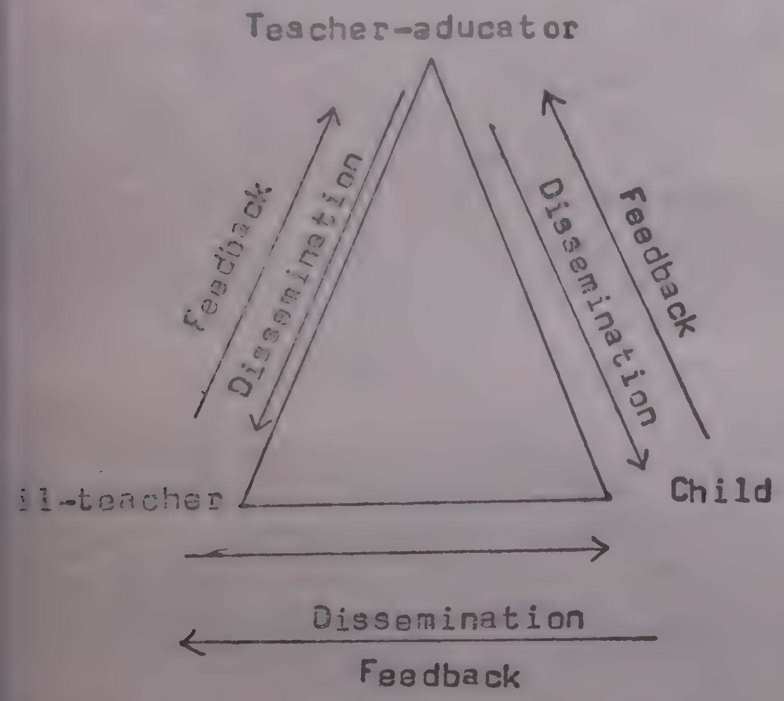
Challenge Before Teacher Education

In an unpublished paper "Teacher Education in the Year 2000 AD", Prof. R.P. Singh of NCERT, New Delhi, bitterly complains :

> "Of late we hear so much about the use of technology in the classroom but the fact is that this 'use' is as much theoretical as many similar concepts and practices have been in the past. Except for the television and the radio which continue to present a semblance of educational programmes nothing 'concrete' seems to have happened.
>
> Education or teaching programmes do not compare with anything serious not even with programmes like 'Krishi Darshan'. Use of these media is restricted to certain towns or cities. The rest is all 'hot air'. Overhead projectors, models, film strips, etc., if they constitute educational technology, are rarely used. Majority of schools have neither of them. The ones that have, never use them,
>
> I wonder about the worth of talking in futuristic terms. For us the future is just an extension of the unmodified present. The past continues to hold its charm. We have either not heard of Toffler and Asimove or do not want to hear any-

ing about them; for else, the change means he recurrence of the present in ever newer forms. Dr else, what efforts have we made to meet the re-lirectly altered scenario in which computer-based ociety will function and the shape and meaning f personal relations and even family shall have hanged ?"[15]

n a paper "Teaching of Education in India",[16] uthored by late Professor L.K. Oad and the ent author, we have advocated the need to leave the ongoing "Linear Tri-Focal Model of Comication Process" (Teacher Educator as Comicator—Pupil Teacher as Receiver as well as imunicator of Knowledge, and Child as Receiver of wledge), and adopt a "Three Dimensional Model nowledge Dissemination" as given below :



The demands of the above submissions impel the her educators of today to take very crucial steps emodel teacher education strategies so that it may apable of meeting the challenges of our future ety.

it appears from the above-mentioned future arios that while on the one hand the problems of erty, unemployment, national disunity, backward- and internal tensions are likely to continue on a e scale, on the other there are prospects of India oming a major power, a world Guru of spiritual human values and achieving a lot of scientific industrial progress.

It is, therefore, necessary to make teacher education functional to meet these challenges. Some ictical steps that ought to be taken from now on asunder :

(i) The present unrealistic and ritualistic programme of "SUPW" or Craft Work or Practical Work/Working with Community should be substituted by an earnest programme of training teacher trainees in cottage and tiny village industries like rearing of silk worms, keeping honey boxes for collecting honey, making handmade paper and paper products, making of wooden toys and educational toys and games, making of pickles, jams, squashes etc., making poly-khadi and its dresses, making of artistic iron bar furniture, and making of other useful articles from locally available resources using small machines, so that the teacher trainees definitely become expert in at least two such activities and they may be able to teach children in villages and slums to become self-sufficient.[17] The Gandhian concept of Basic Education in its modernized form needs to be implemented very seriously.

(ii) Instead of the present 'teacher-centred education' and teacher educator centred teacher education', serious steps should be taken to make education learner centred and teacher education teacher trainee centred. More emphasis should be laid on self-learning, surveys and field work, practical and community work to be done by teacher trainees, so that they are able to become more sensitive to the realities of the social milieu and the changes therein. As Toffler has rightly suggested, "Students must be sensitised to the trends of change, to probabilities for alternative futures, to an array of future possibilities, to modes of adaptation, to corrective and innovative action. They should be encouraged to transcend past experience, to creatively invent the future, and to define sound means of implementation."[18]

(iii) Since, as Toffler says, "Tomorrow's schools must teach not merely data, but ways to manipulate it; students must learn how to discard old ideas, how and when to replace them; they must learn how to learn, unlearn and relearn",[19] tomorrow's teacher education must prepare teacher trainees to be successful in such schools of the future.

(iv) The proverbial isolation of teacher training institutions must be done away with. They should interact with all kinds of institutions and agencies to prepare their teachers as agents of change and future connoisseurs effectively. The idea of 'learning to be' given by the UNESCO Report *Learning to Be*[20] must be implemented. Instead of the teacher educators themselves covering all the topics in the syllabus in their lectures which are bound to be cursory, flimsy or lacking in comprehension and futuristic insights, the teacher trainees should be motivated to meet, contact and use various libraries, museums agencies, experts, futurologists etc., to prepare their assignments on most of the topics.

(v) The present ritual of Practice Teaching needs to be examined seriously. It is no use continuing with it in its present old, meaningless and anachronistic form. Instead there is need to implement micro-teaching seriously, and also to prepare a series of video films of successful class teaching in various subjects in schools and colleges and show them to the teacher trainees from time to time.

(vi) Teacher education needs to be on the 'Conscientization Model of Education' as Paolo Friere[21] has suggested so as to prepare teachers who can take up the challenging role of educating, helping and guiding the pupils to fight against and overthrow the oppressive tendencies of our society and culture. The existing 'Banking Model of Education', which is followed by us, is not only irrelevant but harmful for our future society.

(vii) Each teacher training institution and department of education in a university must have 'Council' or 'Club' of the Future, in which the teacher educators, outsiders from different fields, teacher trainees should very often discuss about the future possibilities and probabilities in society, economy, polity and education in India in the context of the global changes.

(viii) Most of our teacher training institutions are paying only lip service to the concepts of non-formal education, adult education and women's emancipation and even child education. It is necessary that in our theory as well as practice teaching and practical work components, we should give greater weightage to these concepts and try to prepare our teachers to contribute effectively in these hitherto unexplored areas of development.

(ix) Greater use of educational technology—computers, VCRs, slides, projectors, etc. is extremely necessary. We have to do away with the age old tendency of lethargy, inaction and aversion of using hardwares. The principals, heads of education departments of universities and professors of education need to be given orientation courses as such, otherwise old attitudes shall continue to mar the progress and development of right kind of teacher education.

(x) There is need to inject new ideas of management and human relations, innovations and social engineering in teacher education. The present stereotyped model of teacher training college full of autocratic, traditional and unmotivating ritualistic moorings needs to be discarded, and a new model of growing, participative, progressive, changing and collaborative learning web needs to be developed.

(xi) 'Three Dimensional Model of Knowledge Dissemination" as highlighted needs to be adopted in teacher training institutions.

(xii) Lastly, our teacher training institutions must assume leadership in the art of value inculcation and value clarification, for India has to regain its old role as world's spiritual and moral Guru in the coming decades. We must realise that 'Education in Human Values' shall be the most important programme of our curricula, and it is in this area that we can surely provide leadership to the world.

In the end, I would like to urge the fellow teacher educators to remember always what Toffler has rightly stated : **"The future doesn't just happen; we make it and we can use it...the future is a learning resource".** The teacher education institutions have to understand and appreciate and take concrete steps towards this new realization. ☐

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Dr. S.R. Suryavansh
PRINCIPAL

An Agenda for Rural Universities

M.P. Boraian*

Rural universities are a vital adjunct of higher educational institutions in India. Claimed to be a unique kind of learning centres, these universities have the prime object of imparting higher education to learners largely from villages. The New Educational Policy (1986) also lays special emphasis on rural universities and proposes to establish more of this sort in various parts of the country. Hence a closer examination of their functioning becomes imperative.

Role of Rural Universities

This paper attempts to analyse the role of rural universities in promoting rural development through the process of developing human resources from the villages and other areas. More than their concern for academic excellence, rural universities are expected to have greater social responsibilities. The society desires that these institutions serve as a source of guidance, support, innovation and experiments in rural development.

Academically, they need to offer socially useful programmes and eschew traditional courses offered by their conventional counterparts. Every aspect of their programmes needs to have relevance to their social environment, both near and far. The products of such institutions are required to have not only mastery of knowledge and skills but also the quality of service and commitment towards helping the rural people.

Rural universities ought to be in constant touch with rural realities, the developmental endeavours made by the change agents, impact of these efforts on the quality of life of people and impediments experienced in further progress. They may also locate spheres of technology transfer, productivity, improvement, employment expansion and income generation. Equally, they are expected to identify the 'social knots' as well as spatial constraints in order to devise suitable mechanisms for creating a congenial climate for development.

Linkage with Communities

Often, villages serve as the social laboratories of rural universities and a testing ground of development plans and programmes. Rural universities may develop symbiotic relationship with the neighbouring communities with an inherent power of radiation to their distant counterparts. More specifically, the following tasks may form part of their agenda :

(1) Bring about social awareness, educate people for an enlightened life, train them for productive work and prepare them for a progressive state.
(2) Diffuse social tension, ensure communal harmony and serve the most distressed segment of the population on a priority basis.
(3) Guide the weaker sections of the population to harvest the benefits of development programmes sponsored by the government as also by other development agencies.
(4) Assist the local institutions in plan formulation, resource mobilisation, programme implementation and monitoring, as also ensure effective delivery system, and ease people's hardship in the process of benefit utilisation.
(5) Build up community organisations, resuscitate the dormant institutions and strengthen the leadership quality as well as managerial ability of potential leaders.
(6) Evolve innovative development models, approaches and strategies and demonstrate viable alternatives in rural development to other change agents for replication.

More than the input of knowledge and information injected by rural universities in their respective service villages, promising youth and women in these villages may be imparted productive training in appropriate fields. Soon after such training, rural universities may explore all possible avenues for utilisation of skills acquired by people and facilitate them to be self-reliant. The success of development activities sponsored by rural universities would depend on the extent to which they have reduced the dependence of people living below poverty line.

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We see a number of institutions which have been operating in a cluster of villages for over two decades. But unfortunately, they have not made the people economically independent. In fact, they have tended to create larger dependence among the rural communities, Obviously this is not in tune with the goal of rural development. Hence, rural universities functioning in the above fashion would need to review their policies and approaches in order to evolve a suitable framework of development to usher in a self-reliant development process.

An ideal rural university system needs to involve experienced and resourceful members of the rural communities such as progressive farmers, successful entrepreneurs, enterprising women and innovative youth in the programme of teaching, training and extension. One step further, enlightened and articulate members of service villages may also be represented on all the important decision-making bodies of rural universities such as the Academic Council, Syndicate and Senate at par with the other members. Students and teachers from rural universities may move into the villages en masse, atleast every Saturday, after five days of theoretical learning every week for both observation as well as service.

Organisational Alliance

Rural communities have been witnessing growth and development set in by a galaxy of change agents. These change agents have been vying with each other to operate in isolation and achieve their goal individually. The results of such experiments have been satisfactory but not sufficient. Fulfilment of people's basic needs alone is not our objective. We want to advance and scale up new heights. We must therefore, be innovative and enterprising. The time is ripe for coordinated efforts, collective trial and an alliance approach by development machineries including the government.

There are five options in ensuring organisational alliance by any change agent. In the case of a rural university, it may resort to the following approaches to ensure delivery of greater service to the rural people :

1. *Partnership Approach*

Function in alliance with another change agent. e.g. Government.

2. *Triangular Approach*

Function in association with two other change agents, e.g. Government and NGOs.

3. *Quadrangular Approach*

Function in union with three change agents. e.g. Government, voluntary agencies and scientific research institutions.

4. *Multi-agency Approach*

Function in communion with several agencies in order to get specialised services from the respective agencies.

5. *Horizontal Approach*

Function in conjunction with similarly placed fraternal institutions with identical objectives, operating elsewhere. e.g. with other rural universities and like-minded centres.

In order to make new strides in various spheres of rural development, rural universities may work in close cooperation with the change agents in the above pattern for fostering progress in rural communities.

Linkage with Government

Forging closer linkages with the Government will form the fulcrum of rural universities. Rural universities, with specialised faculty in various facets of rural development, may strengthen and supplement the developmental efforts of the government in the following spheres :

1. Identification of most backward villages/hamlets in a block or district and arrange for camp by students.
2. Identify areas of massive manual labour projects in villages/hamlets and design programmes for the investment of manual labour by students, matched by local village manpower.
3. Mapping and appraisal of physical, natural and human resources in villages and identifying potential areas for development.
4. Identification of families living below poverty line, prioritisation of community felt needs and developmental problems.
5. Preparation of household, village and block plans in accordance with the available local

resources by involving the community leaders and institutions.

6. Assist in the implementation of programmes particularly in respect of awareness generation, adult education, organising and training, poverty alleviation, environmental protection and social welfare.
7. Conduct monitoring and evaluation studies on current development programmes, formulate viable alternatives and provide effective feedback to the policy makers and planners.

Rural Development Observatories

Information about the special programmes on poverty alleviation, productivity improvement, social welfare and other programmes of development sponsored by the Government will be an essential database to the rural universities. A thorough knowledge of such ongoing rural development programmes including the latest guidelines for their implementation will immensely benefit the rural masses through the outreach programmes of rural universities. Under the present system, even senior faculties attached to Rural Development Department are oblivious of certain latest development programmes aimed at the rural people.

As such it would be desirable that the rural universities devise suitable mechanisms of maintaining a repository of knowledge on the policies, plans and programmes of rural development and update them regularly. Further. they may keep themselves abreast of the findings of monitoring and evaluation studies on the development programmes made by not only the government but also other research and development bodies. All these warrant the creation of a Rural Development Observatory in each rural university and feed the observatories with developmental information periodically.

Equally, the Government would be benefitted by the technological advancements and developmental innovations generated by rural universities. The Government may also arrange for periodic interaction with rural universities, in order to get a feedback on the effectiveness and sustainability of their developmental initiatives. Such forums would also facilitate rural universities to identify their thrust areas and undertake socially useful ventures. In order to facilitate this process and achieve the above objectives, an organic linkage between the Department of Rural Development and rural universities in the State is essential.

Co-ordination Mechanism

We may therefore, evolve a coordination mechanism at various levels starting from the State down to the level of village clusters. It could be a triangular body at the respective levels and would comprise key officials from the Department of Rural Development, Rural Universities and other developmental Departments. There could be an Advisory Committee at the State level while at the district level, a Coordination Committee may be organised. At the block level, we may have a Planning Committee and at the level of village clusters, a Task Force may be constituted.

The State level Abvisory Committee may meet half-yearly while the District level Co-ordination Committee and the Block Level Planning Committee may meet every quarter. The prime task of these committees would be to identify the areas of linkages and decide upon the nature of involvement by rural universities in the programmes of the Government.

In order to translate the policies and programmes of both the Government and the rural universities into practice at the village cluster level, a Task Force consisting of experts from different subjects could be set up. The scope of the task force may embrace all major fields of development dealt with at the block level. The area could be village clusters or the entire block depending upon the magnitude of the task and its area spread. Its composition will be distinct, whereby for every subject matter specialist drawn from the government to represent a sphere of development, suitable counterparts from the rural university with expertise in the respective spheres could be matched.

The task force would serve as the most critical body and would be responsible for identifying local problems and formulating plans at the grassroots level. Structurally, it will be an offshoot of the Block Planning Committee and will function under its guidance. However, the task force could be as flexible in operation as situation would demand. Under its auspices, there could be a meeting between two or more experts representing one or more specialised fields. Besides such need-based meetings, it may also have its fullfledged meeting every quarter, preferably before the Block Level Planning Committee meets.

Nexus with NGOs

Non-Government organisations (NGOs) have been operating in the length and breadth of the country including the jurisdiction of rural universities. NGOs effectively functioning in the vicinity of such rural universities, may be considered as their practical arm of rural development and hence need to foster greater cooperation between the two. A strong nexus with progressive NGOs in the environs would provide the rural university with an opportunity to have a deeper diagnosis of problems faced by the villages around, as also help in the identification of probable solutions to tackle the same.

Rural universities could establish an NGO coordination group with the heads of promising NGOs in the region along with the faculty from Rural Development Department. The group may meet periodically, identify possible areas of development cooperation and collectively strive to provide greater benefits to the rural masses through mutually reinforcing programmes. The degree of their linkage will directly influence the degree of their participation in rural developmental efforts.

Besides aligning with the NGOs, rural universities can also undertake certain other efforts to help the rural communities. Rural universities would be able to mobilize resources and muster support from donor bodies, industrial establishments and other sources for purposes of initiating development and welfare oriented projects in villages. Further, constant interaction with scientific research institutions would also enable rural universities to fully charge themselves with latest knowledge in scientific advancement which could be demonstrated and disseminated to the rural folk for higher productivity. Moreover, close linkage with training institutions and technical centres would facilitate rural universities in imparting productive skills to the potential youth and women as also enriching farmers and artisans to upgrade their skills and abilities

Through these and several other measures, rural universities and other similar educational institutions can expand their functional horizon and widen the scope of their activities from being merely agents of training human resources in various facets of rural development. The performance of rural universities need be judged not only in terms of their contribution to manufacturing a cream of human resources but equally their share in improving the quality of life of people in rural communities around and afar. While bringing excellence in academics may be their prime concern, they should also sow the seed for a self reliant order in the villages and hamlets. Such an attempt would yield fruition only through conjoint efforts of the rural universities with the Government, NGOs, donor bodies, industrial houses, scientific and technological institutions and training and research centres. Collective and coordinated tasks, as contrasted to selective and isolated attempts, would always generate greater results to the community and redouble the vigour of rural universities in serving its rural hinterlands. □

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PRINCIPAL

NURTURE OF TALENT

U.S. Chaudhari*

In our country many potential Ramans and Tagores are herding cattle or breaking stones. The new revolutionary function of Indian education is to serve as a great conduct for the development of talent at every level of ability and aspiration. An ever-renewing system or a self-renewing society puts a high premium on talent and creativity of its members. It means a continuous and effective operation of 'talent salvage' to assist young people to achieve the promise they have within them.

The **Commission on Excellence in Education** in America submitted its report, **A Nation At Risk** in April, 1982. This title is full of meaning for America as well as for other countries of the world. This sounds an alarm to stop further mediocritization of America. The report underlines the fact that "excellence costs. But in the long run mediocrity costs far more. . . . . ." our goal must be to develop the talent of all to their fullest. Attaining that goal requires that we expect and assist all students to the limits of their capabilities. We should expect schools and colleges to have genuinely high standards rather than minimum ones, and parents to support and encourage their children to make the most of their talents and abilities.

Talents lie in many areas and are of many types. India, at the present juncture of development, requires trained talent of every type to meet the demands of national welfare and development. The ambitious and unremitting programmes designed to exploit the land, water and space resources demand that our educational practice be not only geared solely to our national aspirations but must also serve us in an international context if we are to remain a self-sufficient and a strong nation.

Variety of gifts and talents having been identified can be nurtured at different developmental stages. Artistic, musical, dramatic, social, mechanical and other talents can be identified and provisions made for their development at ages that may be different from the ages at which it is appropriate to have programmes for intellectual giftedness. Intellectual giftedness can be identified early, even at pre-school levels. Efforts are also needed to identify an develop talents in the areas of planning, managemen communication, teaching, research, science and morality which are greatly in demand in this complex an changing modern society. Provisions for identification and for educational programmes must take int account the developmental differences. There ar also so called "morning glories", "late bloomers" an "under-achievers". Therefore, it is to be noted tha development of talent hardly follows a linear patter (Chaudhari, 1984).

Researches tell us that human brain operates o an emotional bias system. Only information that perceived by the learner as helpful, interesting an rewarding is eventually processed by the brai (Galyean, 1981). In fact, the learners learn what the want to learn. In other words, cognitive functionin is determined by the emotional state of the learne Researches on gifted individuals also reveal that thes people are generally seen to be more motivated, attentive and retentive than the average learners (Clar 1979). They have the ability to maintain consiste positive images about themselves and their enviror ment (Coopersmith, 1967). Therefore affecti models of learning and teaching need to be employe in the education of the gifted and the talente Wittrock (1979) recommends greater use of affecti motivators such as desire, social approval, exciteme and altruism.

Talent or giftedness is predominently a functio of the right hemisphere of the brain. But, the trad tional educational approach has been found emphasize left hemispheric functioning (Bogers, 196 Wittrock, 1978). Many researchers believe that certain right hemispheric functions are not activat and used adequately, they will never fully develo Our highest creative achievements are the product complementary or collaborative functioning of t left and the right hemispheres. The goal, therefo is to train everyone to function well in both modes.

To design and implement brain compatible settin and methods will require the creative and practic efforts and contribution of a great many peop including educators, parents and administrators, many levels. That prospect seems highly attracti (Hart, 1975). One of the greatest challenges bef the educators of the gifted is to discover ways

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expand upon one of the greatest of human gifts that being a keen, constantly expanding confluent mind and to teach others how to acquire and nurture this gift for themselves. Herein lies the foundation for a society which values the bonding between intelligence and creativity, logic and intuition, analysis and holistic perception, egoism and altruism, and sees these as touchstones for actualizing the full spectrum of human potential (Galyean, 1981).

The present-day home and classroom climate is permeated by authoritarianism, verbalism and censor. They lack flexibility, openness and psychological freedom which play an important part in the facilitation and release of creative potential of the children. The parents and teachers are crucial factors in nurturing talent and creativity. Much potential can be realized if the teacher and the parents are able to recognize creative behaviour, and are subsequently sympathetic towards it, and also make efforts to stimulate it. Gown (1972) has observed that every normal individual is capable of getting creative ideas, but they disappear if they are not attended to and nourished at their very first appearance.

A teacher who would facilitate creativity not only must provide a permissive atmosphere and shun drill but also must manifestly reinforce original behaviour at every opportunity. Researches have shown that a high degree of controlling behaviour by teachers is detrimental to verbal creative performance. The learner must be given the freedom to express creative desires. This is in no way a suggestion that there must be no control or systematic guidance. Effective and empathic guidance is necessary through the provision of appropriate method and material. Control is necessary so that pupils with creative potential (or talent) experience the boundaries within which they can both adventure and also feel secure. It is important that these boundaries are wide, that they are flexible, and that they are not inhibiting, but nevertheless they will be there (Foster, 1971).

A programme for the gifted and talented, according to Kaplan (1974) provides multi-dimensional and appropriate learning experiences and environments which incorporate the academic, psychological and social needs of these students. The implementation of administrative procedures and instructional strategies which afford intellectual acquisition, thinking practice, and self-understanding characterise a programme for the gifted and the talented. Such a programme assures each student of alternatives which teach, challenge and expand his knowledge while simultaneously stressing development of an independent learner who can continuously question, apply and generate information. The instructional strategies of these programmes should focus upon helping the talented children "to learn to learn." □

MINISTRY OF DEFENCE

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Under the 'flexible complementing' scheme in operation in DRDO. Promotions are based on merit rather than availability of vacancies.

Bond : Selected candidates would have to sign a bond to serve DRDO for a minimum period of 5 years on successful completion of the course.

Universities : The Programme is being conducted in Universities of Allahabad, Andhra, Cochin, Indore, Madurai, Mysore and Pune. The candidates may apply directly to the University of their choice as and when the advertisement appears for each of the University.

Eligibility : Candidates possessing a first class degree in Mathematics, Physics, Computer Science or Electronics from an Indian University are eligible for admission.

Age : Not more than 23 years.

davp 90/64

Commemorating BITS Silver Jubilee

Birla Institute of Technology and Science (BITS) set up in 1964 plans to celebrate 1990 as the Silver Jubilee Year. To Commemorate the event it proposes to set up a Centre for Research on Educational Innovation and Institutional Development. The University Grants Commission (UGC) has 'in principle' accorded its approval to the launching of the Centre and committed financial assistance to the tune of Rs. 30,00,000 spread over 5 years subject to the condition that total liability of the Centre will be taken over by the Institute after 5 years from the date the Centre is established.

Making a formal proposal to the UGC, Dr. S. Venkateswaran, the BITS Director wrote "We aspire to establish the Centre as a mark of our achievements so far, which could also help us march forward towards greater achievements in the future".

"Since Independence, India has built up the third largest tertiary educational system. India has also built up the third largest institutionalized and organized research establishment in the world. This process has come through trials and errors, extrapolation of preindependence experience and through several foreign collaborations. As elsewhere, the sum total of these efforts has created an expertise, a knowledge pool and an information base which should provide the back-up support for further expansion of similar establishments as well as for export of know-how to countries of the developing world. Indeed, through piecemeal and ad hoc attempts India has played an advisory role in the setting up of a number of institutions of higher learning, training and research elsewhere in the world. Our knowledge pool in the UGC, in the AIU, in the Ministries of HRD, Agriculture and Health, etc. will continue to be strengthened and increasingly used for new educational tasks. However, it seems that a major lacuna remains vis-a-vis the evolution of a process or expertise generation. This lacuna is in the university system itself. Universities themselves have largely remained content to mechanically receive urges for reforms, planning methodology and management techniques emanating from outside. What, perhaps, could have been called as in-house research has never been systematically attempted. For the process to have the momentum, it is imperative that the universities create centres within themselves to do introspection, to put a searchlight on their own methodology and monitor their efforts for educational planning and modernization. The situation is so sad that even a proper data base cannot be made available in regard to what actually is happening in the various universities. If centres for research in the new areas of Biology, Microelectronics, Instrumental Analysis, etc. have been explained as the modus operandi for introduction of challenges and nurturing of challenges, why a similar centre for in-house research is not considered necessary? Indeed, if this is not included as a relevant research area the Indian experience will remain undocumented, unreported and unused."

Referring to the pioneering role of BITS in promoting educational innovation and its credentials for setting up the Centre, Dr. Venkateswaran wrote, "BITS, as a privately supported deemed university, has over the last 25 years, seriously taken up the challenges of working out viable changes in the educational system in the country. It has acquired a reputation as a highly purposive innovative university, often setting the pace for workable reforms in higher education suitable to and relevant for the Indian milleu. BITS has introduced the semester system and internal evaluation since its inception. It has restructured its educational programmes to make them more enriched, inter-disciplinary, flexible and marketable. Through its Practice School programme, BITS has institutionalized the efforts to create purposeful linkages between the professional world and the educational world. The Institute has evolved a direction for Research and Consultancy which makes research relevant to national development and social needs. It has developed a unique academic administrative structure which makes all its innovations possible and workable."

"The unique methodology which promoted the techniques of management of BITS is research-oriented—research in terms of the heritage of BITS. Its limited resources and what can be done of the highest possible excellence in the Indian scene. The Institute has gathered in this process a huge documentation of the Institute's past experience in teaching, in examination, in research, in administrative reforms, in organizational changes, in financial management, etc. which had to be continuously updated and researched upon. On the foundation of this rich experience, the Institute now proposes to establish a Centre for Research on Educational Innovation and Institutional Development."

The objectives and scope of the proposed Centre are asunder :

(i) The centre will be the nerve centre of the Institute in terms of ideas, creativity and innovation.
(ii) Through this centre the Institute will nurture and promote research on its own educational management and administrative processes.
(iii) It would systematically document and integrate knowledge and skills generated at the workbench for all levels of education.
(iv) The data base generated and analysed in this centre will be the enabling and motivative force behind operation, expansion, strengthening, updating and modernization of teaching, research and consultancy and formal and nonformal education.
(v) The experience obtained through implementation of educational innovation would be applied towards strengthening of manpower training.
(vi) It will pool interested manpower already available in the Institute as well as manpower from outside.
(vii) It will create facilities and environment for interested faculty from within as well as from outside universities and educational organizations to do research on educational innovations.
(viii) It would also organize certain specific programmes like practice school, vocational courses for other educational institutions who wish to implement such innovations.
(ix) It will also organize special programmes for the use of educators, planners and administrators and managers so as to enable the reach of the latest theory and practice in different disciplines and functional areas to all sections of manpower in government, education, business and industries.
(x) It will organize seminars, symposia and workshops.
(xi) It will collect a data-base available from UGC, AIU and various universities relevant for educational reforms and innovations.
(xii) It will create software to analyse all these data.

The areas in which the Centre will concentrate are :

- Planning and implementation of examination reform.
- Designing and restructuring of educational programmes.
- Course development—Preparation of textbooks, teaching materials, teaching aids.
- Computer software development for educational administration and infrastructural facilities.
- Computer software development for student records, time-table, admission process.
- Conducting teaching workshops for upgrading teaching skills.
- Purchase and upkeep of educational hardware.
- The new methods of vocational training.
- Development of distance learning programmes particularly in S & T areas.
- University-industry linkage.
- Developing new methodology for educational and cultural advancement of socially disadvantaged pupils.
- Adult education.
- Science education.
- Detailed methodology on faculty development.
- Systems approach to educational operation and correlation between cost of education and efficiency of education.
- Preparation of feasibility, project and status reports on specific topics.
- Offering services in the acquisition of equipment, library books, journals and experts for new institutions in the country and abroad.
- Evolving new norms for innovations in new universities in the developing countries.
- Organization of placement unit—campus interviews, career planning.
- Counselling of students.

XX Annual Convocation of PGI, Chandigarh

Shri Nilamani Routray, Union Minister of Health & Family Welfare & President of the Postgraduate Institute of Medical Education & Research, Chandigarh delivered the convocation address at the XX Annual Convocation of the Institute held recently in Chandigarh Congratulating the recipients of the degrees, Shri Routray said that education was a life long process and was supposed to continue throughout the life for a scientist or a scientific worker. Obtaining a degree, he said, was only one step forward towards the goals set in one's life. He advised the graduands to fully utilise the knowledge obtained from modern science for the cause of the nation and in helping the poor and the downtrodden.

The Minister commended the faculty for their excellence in research work and hoped that they will continue their dedicated researches for the amelioration of death and disease in our people. He also appreciated the programmes related to community mental health, dental health and child survival being carried out by the Departments of Pediatrics and Community Medicine. He hoped that valuable advice of the scientists of the Institute will continue to be available and that they will play a vital role in the welfare of the nation in the times to come.

Another area of activity which was vital for the progress of the nation, related to the family planning programme. The Minister noted with satisfaction that the Institute was engaged in the trial of the anti-pregnancy vaccines and on herbal medicines and other steps taken in this direction. He, however, laid greater stress on research in cheap, acceptable and safe methods of prevention of conception. Research in all aspects of reproductions should be a first priority, he added.

Referring to the developments in medical technology and the investments made therein, Shri Routray said, "There is great need to develop consultancy service and training programmes to enable us to deliver our services in the most effective and economic way. This in itself could become a subject for meaningful research. Perhaps if all the numerous departments of business management in our country could establish departments of health economics and health management, they would do lot of good to our health services which consume more than 3000 crores of rupees in the central sector alone."

The Minister expressed his concern over the question of raising the standards of medical care, in state level institutions and district and lower level health facilities. The Institute, he said, must evolve some programmes so that the expertise available in it could be disseminated so as to raise the standards of health services all over the country.

He concluded his address with a piece of advice when he said, "Science must be practised with concern for humanity. Consideration for the human spirit must be paramount in all your endeavours. The regard for human dignity and the feelings of others would enhance your respect in the eyes of people you serve".

Earlier, while welcoming the Minister and other distinguished guest, Prof P.L. Wahi, Director of the Institute, detailed the various research programmes being undertaken and the notable achievements made during the course of the year.

NEP Review Committee

The Government of India has set up a Committee, under the Chairmanship of Acharya Ramamurti to review the National Education Policy, 1986. The terms of reference of the Committee are :

(a) to review the National Policy on Education, 1986 and its implementation;
(b) to make recommendations regarding revision of the Policy; and
(c) to recommend action necessary for implementation of the revised Policy within a timeframe.

The other members of the Committee are as follows : (1) Professor C.N.R. Rao, Director, Indian Institute of Science, Bangalore, (2) Dr. Sukhdev Singh, Formerly Vice-Chancellor, Punjab and M.P. Agricultural Universities, (3) Dr. M. Santappa, Formerly Vice-Chancellor, Madras University, (4) Dr. Obaid Siddiqui, Tata Institute of Fundamental Research, Bombay, (5) Dr. Bhaskar Roy Chaudhary, Vice-Chancellor, Calcutta University, Calcutta, (6) Shri M.G. Bhativadekar, Formerly Principal, Maharaja College, Jaipur, (7) Professor Usha Mehta, Political Scientist and Teacher, Bombay, (8) Professor Sachhidanand Murthy, Sangam Jagarlamudi, Guntur, (9) Dr. Anil Sadgopal, Kishore Bharati, Hoshangabad, (10) Father T.V. Kunnunkal, Chairman, National Open School, New Delhi, (11) Professor Mrinal Miri, Professor of Philosophy, North Eastern Hill University, Shillong, (12) Dr. Vidya Niwas Mishra, Vice-Chancellor, Kashi Vidyapeeth, Varanasi, (13) Shri S.Z. Quasim, Vice-Chancellor, Jamia Millia Islamia, New Delhi, (14) Shri Veda Vyasa, Chairman, DAV College Management Committee, New Delhi, (15) Shri Manubhai Pancholi, Lok Bharati, Sanosara, District Bhavnagar. Shri S. Gopalan, Additional Secretary, Ministry of Human Resource Development will be the Member Secretary.

The Committee will submit its report within a period of six months.

Orientation of College Teachers

The Academic Staff College of the Himachal Pradesh University organised its Fourth Orientation Programme for the enhancement of professional competence of college and university lecturers. Inaugurating the programme Principal B K. Govil, Director of

Education, Govt. of Himachal Pradesh, said that the training of teachers at the higher education level was essential and called upon the participants to introspect their role in the society and come out to be ideal teachers. He strongly advocated that a teacher must be continuously learning and be open to all points of view.

In the process of orientation, the use of modern educational technology and gadgets was extensively made. Both formal and informal methods of learning were deployed. The participants were involved at all levels of the organisation of the programme. Formal lecturing and informal interactions were effected through various methods such as group discussion, panel discussion, workshop sessions, brain-storming, cultural programme and excursion.

Two panel discussions on the topics, 'University Autonomy' and 'Role of Teacher Organisations in the Institutions of Higher Learning' were organised. The participants were also exposed to computer applications in teaching and research. In order to realise the programme objectives an inbuilt mechanism of monitoring and evaluation was implemented.

Prof. K.C. Malhotra, Vice-Chancellor, who presided over the Valedictory Session, emphasized that the teachers at all levels must be conscious of their accountability towards society and should seek solution to various problems being confronted by the Indian society. Prof. Malhotra hoped that this programme would modify the attitude of teachers and inculcate appropriate teaching skills as to meet the challenge of 21st century.

30 lecturers from various colleges of Himachal Pradesh and neighbouring states participated in this programme.

Advance Course in Geology

The Department of Geology (P.G.) of the Mohanlal Sukhadia University, proposes to organise an advance course in Geology for college and university teachers of Rajasthan and border states under Special Quality Programme (SAP & COSIST) of UGC from 2nd to 30th Aug., 1990.

The thrust areas selected for the course are : (i) Tectonics and geophysics; (ii) Environmental geology; (iii) Applied geochemistry, thermodynamics and data processing; and (iv) Frontiers of geological studies.

Further details can be obtained from Prof. A.B. Roy, Head of the Department of Geology, Mohanlal Sukhadia University, 51 Saraswati Marg, Udaipur-313001.

News from Agril. Varsities

Workshop on Renewable Energy Sources Project

A 3-day VII Annual Workshop of All India Coordinated Research Project on Renewable Energy Source and Operational Research Project on Integrated Energy and Nutrient Supply System was recently held at Haryana Agricultural University. Inaugurating the workshop, Dr. A.L. Chaudhry, Vice-Chancellor, said that India with diverse geographical regions, varied agro-climatic zones as well as enormous human, animal and agriculture resources was endowed with abundant supply of natural renewable feed stocks for generation of energy which could be profitably utilized for improving agricultural and animal productivity. In the post harvest operations and agro-industries like food processing, dairy, sugar industries and alcohol distillaries, these could find important applications not only in supplementing their energy demands but also in keeping the environment clean and wholesome.

Dr. Chaudhry further said that in view of the fact that energy sources were becoming costly and dwindling day by day as well as the poor adaptability of the new technique it was imperative on the part of the scientists to ensure large scale adaptation to popularise the new techniques. He called upon the participants to develop and design the energy sources which were cheaper, durable and suitable to different agro-climatic regions. For conservation of national eco-system and also to meet the demand of food, fodder and fuel, the Vice-Chancellor said that farm and forestry residues could be better utilised for power generation for production of gas technology rather than using these residues directly as a source of fuel. Dr. Chaudhry commended the work done by the scientists in utilisation of solar energy through new design of solar cooker, solar drier, solar water-still, etc. and suggested that their popularisation was as important as their design.

In his presidential address, Dr. T.P. Ojha, Deputy Director General (Engineering), Indian Council of Agricultural Research, New Delhi, said that the scheme was in operation since last two decades through 35 centres established all over India. Dr. Ojha asked the participants to take stock of the situation and remove the constraints which were responsible for their poor adaptation. To achieve the goal of popularisation of the new techniques, Dr. Ojha emphasised the need of bringing out good publications containing the work done by all the 35 centres so far. Equally, for a feedback he suggested to take up survey of adopted villages of operational research project. He said that since regional research responsibilities rest with the agricultural universities, the research centres of all the operational research projects should be transferred to the agricultural universities.

Dr. R.C. Maheshwari, Project Coordinator of the ICAR, presented a status report of all the 16 centres through slides and stressed the need of establishment of multi, location centre.

Over 100 delegates from all over the country participated in the workshop to finalise the future strategies in this field and deliberate upon the work done so far.

RNAM Experts Visit PAU

Dr. Ziaur Rehman, Project Director of the Regional Network for Agricultural Machinery (RNAM), Philippines alongwith Mr. Shahid Latif, Senior Programme Management Officer visited the Department of Farm Power and Machinery of the Punjab Agricultural University recently.

The objective of their visit was to study the farm power and machinery development programme of the PAU and to see the time and labour saving farm implements developed by the University engineers. The visitors highly appreciated the mechanisation programme of the PAU in the areas of food and feed crop seeding, planting, harvesting, threshing, drying and milling.

VC Pleads for Futuristic Approaches in Research

"Since 40 per cent of the University budget has been earmarked for the development of research activities for the year 1990-91, it is imperative on the part of the researchers and senior scientists to reformulate the old research schemes irrespective of their research categories and make room for the new futuristics approaches in them. No new programmes should be started without assessing its utility in relation to immediate and long termed objectives of the programme", said Dr. A.L. Chaudhry, Vice-Chancellor, Haryana Agricultural University, in his first address to the faculty members of the University after assuming the office of the Vice-Chancellor.

He further said, "In view of day to day agro-climatic conditions and also our ever increasing demands now we have reached a stage when we should take stock of the situation and see how our programmes are made farmers oriented and what diversification in agricultural practices we can suggest to the farmers so that they can get maximum profit". Dr. Chaudhry stressed the need of greater formal and informal interaction between the students and the faculty, to develop amiable relationship of faith & trust so that environment of work culture was created at the campus. He appealed to the scientists to make concerted efforts in their respective disciplines.

Referring to the young scientists as future VIPs, Dr. Chaudhry asked the senior faculty members to give their required support, guidance, inspiration and encouragement to the young budding scientists so that a work culture based on mutual understanding could be developed at the campus.

News from UGC

INSAT-1B Programme of UGC

Between 1st June, to 7th June, 1990 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 Noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

1st Transmission

6.00 a.m. to 7.00 a.m.

1.6.90

"Mathematical Sciences : An Interview with Prof. E.C.G. Sudarshan"

"Understanding China"

"Ecosystem—II : Murmur in the Brook"

2.6.90

"Hour USA : OMNI—The New Frontier (Robots)"

"Indian Stick Fighting—I"

"Professor Yash Pal : A Vision of Space and Earth"

3.6.90

No Telecast

4.6.90

"Wiring Household Plugs"

"Management Functions and Behaviour — Communication Process"

"Biological Control : A Natural Alternative"

5.6.90

"Home Made Cosmetics—I"

"Educational Technology—The Teleteacher—I"

"Ocular Hygiene and Visual Defects"

6.6.90

"Fire Retardant Thatches"

"Perestroika and Glasnost—Their Impact on Modern Soviet Society"

"Introducing Insects"

7.6.90

"Computer Literacy — II : Concept of Proramming"

"New Literature in English"

2nd Transmission

12.00 noon to 1.00 p.m.

1.6.90

"Gift of Numbers—III"

"Social Survey"

"Forests in Peril—II"

2.6.90

"What is a Spastic—I"

"Help for Mother and Child"

"Rhythms Under One Roof"

3 6.90

No Telecast

4.6.90

"Physics of the Sun"

"Material Management"

"Red Headed Hairy Caterpillar"

5.6.90

"Chemical Kinetics—III"

"The Countrywide Classroom"

"The Human Brain—III"

6.6.90

"IRS—1A Application"

"Monsoon Circulation in India"

"Silk for the Desert"

7.6.90

"The Quick Brown Fox Jumps Over a Lazy Dog"

"Soil Erosion"

"Poetry in Indian English"

News from Abroad

Passports to Trent University

Eight Ontario infants, all of whom were born on October 17, 1989, have received a birthday gift from Trent University that could last them a lifetime--once they grow up. The babies—including one set of twins and one one-dey old—have all been awarded passports to the university entitling them to free tuition for an unlimited number of courses. The courses can be taken throughout the recipients' life provided they are able to meet the academic requirements in effect at the time.

The passports are designed to commemorate the 25th anniversary of Trent. They, were created by the organizing committee for the anniversary celebrations in recognition of the longtime ties between Trent and the Peterborough community and between Trent and Oshawa where the university has had a satellite compus since 1975.

Trent's president, John Stubbs, personally visited the maternity ward of Peterborough Civic Hospital to present the passports to the families of the special anniversary babies.

Monitoring University Teacher Supply

Britain's University Authorities Panel, consisting of vice-chancellors and other representatives of university governing bodies, and its Association of University Teachers will jointly establish machinery to monitor the recruitment and retention of university academic staff. The groups hope to prove that low salaries do not attract enough well qualified faculty, leading to a decline in the quality of university teaching and research. This belief and plans for the joint monitoring system were stated in a submission to the government requesting more money for academic salaries.

The teachers and university officials argue that salary levels prevent academic institutions from competing successfully with industry and commerce for new graduates. Aging academic staff and an inability to meet increasing demands for basic research will be the result, they charge. Britain would then eventually fall behind in world marktets. the groups add.

Book Review

Planning for the Millions

S.C. Dube*

Anand Sarup and Brahma, Sulbha. Planning for the Millions. New Delhi : Wiley Eastern, 1990. Pp 183. Rs. 30.00.

This book is aimed at a non-specialist readership. The combination of a retired civil servant and a trained economist would have been deadly had the former chosen to write in practised officialese and the latter in the cherished jargon of most contemporary economists. Mercifully we have been spared this torture, for the book has been written in clear and comprehensible prose. The authors, in addition, have had good editorial advice.

Chapters I, II, and VI tell us what planning is about. The other chapters explain the complexities of the Indian situation and illustrate how they have affected the process of planned development in India. From its pages one also learns about the failures of Indian planning. One wishes that the authors had also gone into the question of the prevailing power structure and its implications for the formulation of the goals of change and the implementation of the plans. On this theme they have only some suggestive leads. These days one hears a great deal about participatory planning at grassroots and upwards. A searching examination of the planning role of decentralized institutions (Panchayati Raj) would have been illuminating. One of the authors had close experience of this in his long civil service career. One needs to know how bad practice defeats sound theory.

The authors' concern for the poor and the vulnerable is evident. The emphasis is where it should have been. This is a good book. The common reader will find it useful. It could also form part of the foundation courses for the first degree students in Indian universities and colleges.

The best part of the book is its price. For a neatly printed book of 183 pages, brought out in 1990, Rs. 30 is an unbelievably low price. For the quality of its contents and production it will be a good buy.

**Former Vice-Chancellor, Jammu University and Director, Indian Institute of Advanced Studies.*

SCHOOL OF CORRESPONDENCE COURSES, ANDHRA UNIVERSITY

WALTAIR

B.A./B.Com. Entrance Examinations of School of Correspondence Courses of Andhra University which are scheduled on **1 July, 1990** will also be held at **NEW DELHI** at Sri Venkateswara College, Dhaula Kuan, New Delhi, besides other Centres.

B.A /B.Com. (Correspondence) Degree Examinations of the School under Common Core Regulations will also be held at **NEW DELHI** at the above said College. The examination schedule for the B.A./B.Com. Degree courses will be notified later.

Waltair
May 22, 1990

Prof. V. Abraham
DIRECTOR

ADARSHA EDUCATION SOCIETY'S
Arts, Commerce and Science College
HINGOLI (Dist. Parbhani)-431513
WANTED LECTURERS IN SENIOR COLLEGE

Sl. No.	Subject	No. of Post	Nature of Pos
1.	Commerce	One full time	Reserve for S.T.
2.	Hindi	One full time	Reserve for SC/NT
3.	Electronics	One full time	Open

Qualification : Candidate should possess Master' Degree in relevant subject with at least 55% or it equivalent grade and should possess a good academic record i.e. Second class in the First degree examination.

Pay Scales : As per Marathwada University rules. If qualified reserved category candidates are no available the post will be filled in temporarily from open category.

Application with full particulars including mark obtained at S S.C., 1st Degree and Post-graduat degree etc. with professional qualifications an experience alongwith true copies of testimonial should reach the College Office within 15 days fron the publication of the Advertisement.

Those who are in service should submit thei application through proper channel.

Eknath Nilawar **Ad. U.T. Rode** **Dr. J.M. Mant**
for PRESIDENT *SECRETARY* *PRINCIPAL*

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as a clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857-1970 and 1970-75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

HUMANITIES

Philosophy

1. Balagangadhara Tilak, B. *A critical examination of Jean-Paul Sartre's philosophy.* JNU. Prof. (Mrs.) Suman Gupta, Centre of Philosophy, Jawaharlal Nehru University, New Delhi.

2. Gokhale, Vivek Narayar. *Madekrachi saundarya mimansa.* Nagpur. Prof. P.Y. Deshpande, Prof. (Retd.), Department of Philosophy, 14, Ambazari Layout, Nagpur.

3. Natarajan, Kanchana C.V. *The vidhi viveka of Madana Misra : A study in the analysis of the language of moral injunctions.* Delhi.

4. Sharma, Rashmi. *A study of the ultimate principle in Sunyavada and Advaita Vedanta.* Delhi.

Religion

1. Brahm Singh. *Life and contribution of Anagarika Dharmapala towards the revival of Buddhism in India.* Delhi.

Fine Arts

Drawing & Painting

1. Kumawat, Hemlata. *Boondi ke bhittichitra : Vishyavastu ka chitradheen mulyankan.* Rohilkhand. Dr. Saro Bhargav, Bareilly College, Bareilly.

Music

1. Johari, Anita. *Krishan bhaktidhara ka pramukh kaviyon ke kavya mein sangeet tatva : Ek adhyayan.* Rohilkhand. Dr. Sudha Rani Sharma, Sahu Ramswaroop Mahila Mahavidyalaya, Bareilly.

2 Sharma, Shashi. *Acharya Bharat ke natya shastra evam Pandit Sai Gandev ke Sangeet Ratnakar ka tal evam vadhyadhyayaon ka tulnatmak-sameekshatmak adhyayan evam vivechan tatha adhunik Uttar Bharatiya sangeet ke tal vidhan mein unka sthan* Rohilkhand. Dr. Sudha Rani Sharma, Sahu Ramswaroop Mahila Mahavidyalaya, Bareilly.

Language & Literature

English

1. Desai, Achala Arunkumar. *The autobiographical novels of Mulk Raj Anand : A study.* Karnatak. Dr. C. Venugopal, Reader, Department of English, Karnatak University, Dharwad.

2. Guha Majumdar, Rupendra. *The significance of heroism in modern American drama.* Delhi.

3. Roychaudhury, Pritikumar. *The aesthetic significance of the rural elements in Thomas Hardy's fiction.* Calcutta.

4. Thakur, Bidyanand. *The comedies of Oscar Wilde : A critical study.* Mithila. Dr. Amar Nath Jha, Prof., Department of English, C.M College, Darbhanga.

German

1. Krishna Moorthy, Indira. *The portrayal of women in Peter Handke's works.* Kerala. Dr. Bernard Fenn, Prof., Department of German, University of Kerala, Trivandrum.

Sanskrit

1. Malviya, Poonam. *Ramparak kavyon mein Sita ke charitra ka vikas.* Rohilkhand. Dr. Annpurna Misra, G.D.H.G. College, Moradabad.

2. Srinivasa Rao, Mylavarapu. *Ahobala panditeeya munandali konni mukya vishayamula paramardhamu.* Andhra.

3. Suseela, Tatavarti. *Vasavadatta in Sanskrit rupakas.* Andhra.

Punjabi

1. Birhad Bal. *Punjabi bhasha de vishesh prasang vich Punjabi sanket lipi da vigyanik adhyayan.* Punjabi. Dr. Gurdev Singh, Department of Punjabi, Punjabi University, Patiala.

2. Sandhu, Satnam Singh. *Pragatiwad ate Punjabi kavita.* Punjabi. Dr. Gurcharan Singh Arshi, Department of Punjabi, Punjabi University, Patiala.

Hindi

1. Bais, Asha. *Rajendra Yadav va Mannu Bhandari ke katha sahitya mein nari patron ka manovaigyanik adhyayan.* Devi Ahilya. Dr. (Mrs) C.K. Agnihotri, Govt, Girls Postgraduate College, Indore.

2. Banga, Reema. *Sur ke Ram kavya ka sarvangeen tulnatmak vivechan evam mulyankan.* Rajasthan. Dr. Ram Krishnan Sharma, Saraswati Sadan, Mohalla Kaudiyan, Bharatpur.

3. Chaturvedi, Anandi. *Samkaleen Hindi natakon mein chitrit istri-purush sambandhon ka anusheelan.* Rohilkhand. Dr. R.K. Chaturvedi, Govt. Raza P.G. College, Rampur.

4. Dave, Meena Mukundprasad. *Naresh Mehta ke katha sahitya ka sameekshatmak adhyayan.* Patel. Dr. S.K. Nagar. Prof., Department of Hindi, Sardar Patel University, Vallabh Vidyanagar.

5. Geetha, B.S, *Karnatak ka Hindi sahitya.* Bangalore. Dr. Nagesh Hatwar, Bharatiya Sanskriti Vidyapeeth 1st Grade College for Women, Bangalore.

6. Jain, Rekha. *Hindi kathasahitya mein dalit varg kee samasya.* Rohilkhand. Dr. G.S. Agarwal, Vardhman College, Bijnor.

7. Kalia, Mukul *Interrogatives and negatives in Hindi : A pragmatic approach.* Delhi.

8. Manav, Sadhana. *Hindi ko Chhatisgarh kee mahila sahityakaron kee den.* Ravishankar. Dr. (Smt.) Suman Mishra, Department of Hindi, Govt. Chhatisgarh College, Raipur.

9. Mary, Michael Baa. *Prasad ke natya sahitya mein samajik aur rashtriya chetna.* JNU. Prof. (Mrs.) Savitri Chandra, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

10. Mishra, Gorakh Nath. *Ram-Rasayan aur Ramras Lahri ka tulnatmak adhyayan.* Manipur. Prof. K.N. Prasad, 'Magudh'. Department of Hindi, Manipur University, Imphal.

11. Ranjana. *Sathottari Hindi kavita mein anasthabodh, 1961-1985.* Kurukshetra.

12. Sharma, Hem Prabha. *Mandiyali lok sahitya ka sanskritik anusheelan.* HP.

13. Sharma, Kailash. *Hindi kavva mein samajik chetna ka vikas Nirala ke vishesh sandarbh mein.* Ravishankar. Dr Gulab Singh, Prof., Department of Hindi, Govt. Chattisgarh College. Raipur.

14. Sharma, Urmila. *Parvati Mahakavya mein kavya kala sanskriti aur darshan.* Rajasthan. Dr. R.P. Sharma, B 177A Mangal Marg, Bapu Nagar, Jaipur.

15. Shukla, Uma. *Chhattisgarh ke Hindi katha sahitya mein anchalik jeevan kee abhivyakti.* Ravishankar. Dr. V.K. Mishra, Prof., Department of Hindi, Durga College, Raipur.

16. Tripathi, Thakurdeen. *Hindi kee prem-kam kendrit upanyas parampara aur Ilachandra Jothi,* Ghasidas. Dr. G.N. Tripathi, Prof., Department of Hindi, Guru Ghasidas Vishwavidyalaya, Bilaspur.

Bengali

1. Acharyya, Hare Krishna. *Purbabanger Mansha-mangaler kabi : Pandit Janakinather natun puthi.* Calcutta.

2. Choudhury, Swades Ranjan. *Desh bibhagottar udbastuder upabhasya ouphasik mishran.* Rabindra Bharati.

3. Das, Nimai Chandra. *Vaisnab sahitye chitanya bishayak bhabana.* Burdwan. Prof. Debranjan Mukherjee, Department of Bengali, University of Burdwan, Burdwan.

4. Ganguly, Sambhu Nath. *Madhyajuger Bangla kavya nari charitra sristite moulikata O baichitra.* Rabindra Bharati.

5. Mainan, Kisorimohan. *Madhyayugia Bangla sahitya sanskrita prakrita prakirna kabitar anusaran.* Calcutta.

6. Saha, Tarun Kumar. *Mangal kabye upanyaser purbasuchana.* Calcutta.

7. Sengupta, Bhupendranath. *Rabindra kabitay galpokathan : Rabindranather Galper jagoter sange tar sadrisya-o-parthakya.* Rabindra Bharati.

Oriya

1. Niladri, Bhusan Harichandan. *Adhunik Oriya natakare bastav O udbhat chetna. D. Litt.* Visva-Bharati.

Iranian

1. Md. Nurul Hasan. *Reflection of ethical and social problems in the poetry of Perween Etesami : A poetess of modern Iran.* JNU. Dr (Ms.) S B F. Husaini, Centre of African and Asian Languages, Jawaharlal Nehru University, New Delhi.

Marathi

1. Suryawansi, Ramesh Sitaram. *Bandeshateel krishak jeevan rishyak sabdhavaliche bhashavaigyanik adhyayan.* Nagpur. Dr. S.B. Kulkarani, Head, Department of Indian Languages, Nagpur University, Nagpur.

Tamil

1. Avadaiappan, S. *Western impact on Tamil new poetry.* Madurai.

2. Rajadurai. *Suyamariyathai iyakathirkku Nadargal Atriya Thondu.* Madurai.

Malayalam

1. Krishnan, A.N. *Kerala Paniniyam and Vyakaranamitram : A comparative study.* Kerala. Dr. Ramachandran Pillai, Prof. (Retd.), Department of Malayalam, University of Kerala, Kariavattom.

Kannada

1. Shivaswamy, H.S. *Learning Kannada language literature in degree classes : A study.* Mangalore. Dr. U.P. Upadhyaya, Prof., Department of Post-Graduate Studies and Research, Rashtrakavi Govinda Pai Samshodhana Kendra, M.G.M. College Udupi.

Telugu

1. Jaya Salomi, V. *Telugu Kristhaya snaghala keerthanalu.* Venkateswara. Prof. M. Subba Reddy, Department of Telugu, Sri Venkateswara University College, Tirupati.
2. Kameswara Sastry, Tenneti. *Pracheenandhra : Sahityamu hasyarasaposhanamu.* Andhra.
3. Lakshmi Suhasini, D. *Literary works of K.V. Ramana Reddy : A socio-political analysis.* Venkateswara. Dr. P.C. Narasimha Reddy, Reader and Head, Department of Telugu, Sri Venkateswara University College, Tirupati.
4. Sreehari, M. *Balijepalli Lakshmikantha kavi kruthulu : Samagra pariseelana.* Venkateswara.
5. Subbarami Reddy, A. *A socio-cultural study of ballads of Cuddapati District.* Venkateswara. Dr. P. Narasimha Reddy, Reader, Department of Telugu Studies, Sri Venkateswara University College, Tirupati.

History

1. Bhatt, Praveen Kumar, *Mughal chitrakala, 1500 se 1530 tak mein digdarshit janjeevan.* Devi Ahilya. Dr. J.C. Upadhyaya, Govt. Arts and Commerce College, Indore.
2. Bhende, Usha P. *A cultural study of the temples of Southern Maharashtra.* Karnatak. Dr. A Sundara, Prof. and Chairman, Department of Ancient Indian History and Epigraphy, Karnatak University, Dharwad.
3. Mamta. *Bhartiya swatantrata andolan mein Congress Dal kee bhumika : Madhya Prant va Brar ke vishesh sandarbh mein, san 1930 isvi 1947 isvi tak.* Ravishankar. Dr. R.N. Mishra, Reader, Department of History, Ravishankar University, Raipur.
4. Nagarjan V. *Evolution of social politics of Ancient India from Manu to Kautilya.* D. Litt. Nagpur.
5. Panduranga Rao, A. *Freedom movement in Nellore District. 1920-1947.* Venkateswara. Dr. P. Raghunadha Rao, Prof, Department of History, Sri Venkateswara University College, Tirupati.
6. Premalatha, P.M. *The Congress Party in Tamil Nadu, 1905-1937.* Madurai.
7. Rathod, Namdeo Gobra. *Mahadji Shinde va Uttar Bharatache rajkar. A.D. 1782-1794.* Nagpur. Dr. B.R. Andhare, Head, Department of History, Institute of Arts and Social Sciences, Nagpur.
8. Ray, Asok Kumar. *Trade and commercial organisation in Madras, 1680-1746.* Calcutta.
9. Sen, Partha Kumar. *Study of some aspects of the history of Kamata : Kochbehar since 1772 to the date of accession of Sivendranarayana.* NBU.

INDIAN STATISTICAL INSTITUTE

Documentation Research and Training Centre (DRTC)
8th Mile, Mysore Road, R.V. College P.O.
Bangalore 560 059

ADMISSION NOTICE

Course leading to the Award of
ASSOCIATESHIP IN DOCUMENTATION AND INFORMATION SCIENCE
SESSION : 1990-92

Applications are invited for admission to the course leading to the Associateship in Documentation and Information Science (12 months residential +12 months non-residential).

Minimum Qualifications for Admission :

(i) A postgraduate Bachelor's Degree in Library Science (B. Lib.Sc./B.L.I.S); or
(ii) A second class Master's Degree in any subject and at least two years' library/documentation/information handling experience ; or
(iii) A four-year plus degree, such as B.E. and M.B.B.S. and at least two years' library/documentation/information handling experience.

Applicants may be required to appear in a selection test and interview. No tuition fees are charged for the trainees. A stipend of Rs. 600/- per month may be granted to a student on the merit of his/her performance. A candidate admitted to the course, enjoying full deputation from an organisation, will not receive any stipend. A copy of the application form and prospectus can be had on payment of Rs. 5/- (Rupees five only) by cash/money order from the Professor and Head, DRTC, 8th Mile, Mysore Road, R. V. College P.O., Bangalore 560 059.

Last Date for receipt of filled-in applications : 30 June, 1990.

CLASSIFIED ADVERTISEMENTS

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY
1, NATHIBAI THACKERSEY ROAD, BOMBAY-400 020

Advertisement No. 21 **Dated : 15 May, 1990**

Applications are invited in the prescribed forms available at the University office between 10.30 a.m. to 2.30 p.m. from Monday to Friday and 10.30 a.m. to 12.00 Noon on Saturday, on payment of Rs. 25/- & Rs. 15/- (M O./- in cash) for the following Teaching and Non teaching posts respectively to be filled in at Premlila Vithaldas Polytechnic, Juhu, Santacruz (W), Bombay-400 049, so as to reach the undersigned not later than June 9, 1990.

(A) TEACHING POSTS

Sr. No.	Name of Post	No. of posts	Post under reserved category	Medium of Teaching
1.	Head of Dress Making and Fashion Co-ordination	ONE	—	ENGLISH
2.	Head of Electronics	ONE	—	ENGLISH
*3.	Lecturer in Electronics (Technical) (4 time)	FIVE	ONE	ENGLISH
*4.	Lecturer in Interior Design (Technical) (4 time)	EIGHT	TWO	ENGLISH
5.	Lecturer in Food Technology (Technical)	ONE	—	ENGLISH
*6.	Lecturer in Ophthalmic Technology (Technical). (4 time)	ONE	ONE	ENGLISH
7.	Lecturer in Textile Designing (Non-Technical)	ONE	—	ENGLISH
8.	Lecturer in English (Non-Tech)	ONE	—	ENGLISH
9.	Lecturer in Mathematics (Non-Technical).	ONE	—	ENGLISH
10.	Instructor in Typing & Shorthand	ONE	—	ENGLISH
11.	Instructor in Medical Laboratory Technology	ONE	—	ENGLISH
*12.	Instructor in Food Technology (3 time)	ONE	ONE	ENGLISH
*13.	Instructor in Ophthalmic Technology. (4 time)	ONE	ONE	ENGLISH

(B) NON-TEACHING POSTS

Sr. No.	Name of Post	No. of posts	Post under reserved category	Medium of Teaching
1.	Placement Officer	ONE	—	—
2.	Laboratory Assistant for Pharmacy	ONE	—	—
*3.	Laboratory Assistant-cum-Store Keeper for Electronics	ONE	ONE	—
4.	Fitter	ONE	—	—
5.	Technical Assistant for Electronics	ONE	—	—
*6.	Technical Assistant for Ophthalmic Technology	ONE	ONE	—
7.	Commercial Artist	ONE	—	—
*8	Electrical Instrument Mechanic	ONE	ONE	—
*9.	Watchman	THREE	THREE	—

Age Limit : 28 years for Non-Teaching Posts.

Minimum qualifications, salary scales etc. of the above posts are as per approved by Technical Education Board scales and qualifications. Applications of Scheduled Castes/Tribes/Nomadic Tribes/DNT will be considered as per Government Directives. *Indicates posts under reserved category and will be filled by SC/ST/DNT/NT Candidate only. Incomplete applications and applications on a plain paper will not be considered.

P K. Thakkar
REGISTRAR

THE UNIVERSITY OF BURDWAN

RAJBATI : BURDWAN
WEST BENGAL

Advertisement No 14/89-90
Dated : May 12, 1990

Applications in the prescribed form are invited for the following posts in the approved scales of pay. Professorship Rs. 4500-150-5700-200-7300/-; Readership—Rs. 3700-125-4950-150-5700/-; Lectureship—Rs. 2200-75-2800-100-4000/- PLUS dearness and other admissible allowrnces and pensionary benefits according to University Rules.

(A) Professorship in Sociology ... One post

(B) Professorship in Hindi ... One post

(C) Readership in Law ... One post

(D) Readership in History ... One post (Lien bound but likely to be permanent)

(E) Lectureship in History ... One post (Lien bound but likely to be permanent)

(F) Part-time Lectureship in History ... Four posts

Monthly Honorarium

For Part-time Lectureships : Rs. 150/- per month plus conveyance allowances as admissible under the Rules of the University.

Minimum Qualifications

For Professorships

An eminent scholar with published work of high quality actively engaged in research. About ten years' experience of teaching and/or research. Experience of guiding research at doctoral level.

Or

An outstanding scholar with established reputation who has made significant contribution to knowledge.

For Readerships

Good academic record with a doctoral degree or equivalent published work Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) Production of teaching materials.

At least five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in the case of candidates with outstanding record of Teaching/Research.

For Lectureship

(a) A Doctor's Degree or research work of an equally high standard and

(b) Good academic record with at least Second Class (C in the seven point scale) Master's degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing inter-disciplinary programmes, the degrees in (a) and (b) above may be in relevant subjects;

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard. it may relax any of qualifications prescribed in (b) above;

Provided further that if a candidate possessing a Doctor's Degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record, (weightage being given to M Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's Degree or give evidence of research of high standard within eight years of his appointment, failing which he will not be able to earn future increment until he fulfils these requirements.

For Part-time Lectureships

Same as Lectureship

Omit last paragraph

Specialisation or Proficiency

For posts indicated at 'A' 'B' & 'F' : Any branch of the subject.

For post indicated at 'C' : Comparative Public Law/Comparative Family Law/Criminal & Criminology/Business & Labour Laws/Landdialectics/Environmental Law

For post indicated at 'D' : Any branch of Medieval/Modern History

For post indicated at 'E' : Ancient India.

Those who applied earlier in response to advertisement No. 6/88-89 dated 6.9.88 for post indicated at "A", Advertisement No. 4/89-90 dated 24.7 89 for post indicated at "B" and Advertisement No. 8/89-90 dated 4.10 89 for the post indicated at "C" need not apply afresh,

The choice of the Selection Committee may not necessarily be confined to those who apply formally.

Prescribed application forms may be obtained from Rajbati, University of Burdwan, personally on payment of Rs. 10/- in Cash at the University Sales Counter from 11 A.M. to 12 Noon on Saturday and 11 A.M. to 1-30 P.M. on other working days or by sending a self-addressed stamped (Re. 1/-) envelope (11" x 9") accompanied by Crossed Indian Postal Order of Rs. 10/- in favour of the Finance Officer, University of Burdwan,

Last date for submission of application with requisite fee of Rs. 5/- is June 16, 1990.

M.K. Chatterjee
REGISTRAR

INSTITUTE OF MICROBIAL TECHNOLOGY

CHANDIGARH

(Council of Scientific & Industrial Research)

Advertisement No. 1/90

The Institute of Microbial Technology, Chandigarh is a growing institution with excellent facilities for basic and applied research with a multidisciplinary approach commonly referred to as Biotechnology. The Institute also operates three national facilities, viz. Biochemical Engineering Research & Process Development Centre, Microbial Type Culture Collection and Distributed Information Centre for Bioinformatics with support from the Department of Biotechnology, Government of India.

For ongoing as well as planned activities of the Institute, applications are invited for the following posts :

I. Scientist EI/EII (4 Posts)

(Group IV (3))
Pay Scale : 3700-125-4700-150-5000
(Group IV (4))
Pay Scale : Rs. 4500-150-5700

Age : Preferably below 40 years, relaxable in deserving cases.

These are senior level positions in which the incumbents will be expected to lead research and development teams in specific areas. Candidates with proven record of performance and leadership ability will be considered. Depending on the candidate's merit, either EI or EII position may be offered.

Post No. 1 : Biochemical Engineering

Essential Qualification : First class B.E./B.Tech. in biochemical/chemical engineering with 12 years experience or M.E./M.Tech/Doctorate with 10 years experience as evidenced by publications in reputed journals, patents or processes in use.

Desirable : Experience of large scale process operations in biochemical engineering or fermentation-based industry. Good knowledge in one or more of the following areas:

(i) microbial physiology/genetics/biochemistry
(ii) bio-sensors; and
(iii) bioseparation science

Job requirement: Development of new/improved processes related to fermentation technology and downstream processing. Supervision of operation of state-of-the-art pilot scale fermenter and downstream units with microprocessor control. Planning and participation in advanced teaching/training courses organised by the Institute.

Post No. 2 : Protein Chemistry

Essential qualifications : First class M.Sc. in Chemistry/Biochemistry with 12 years research experience or doctorate with 10 years research experience in the field of protein chemistry as evidenced by publication in reputed journals.

Desirable : Working knowledge of recombinant DNA technology/protein crystallography/DNA-protein interactions/protein separation techniques including affinity based methods.

Job requirement : The candidate will be expected to develop a vigorous application-oriented research programme geared to structure function analysis of proteins in collaboration with other scientists in the Institute. Extensive experience in chemical synthesis of peptides and protein sequence analysis would be necessary, Planning and participation in advanced teaching/training courses organised by the institute.

Post No. 3 : Bioorganic Chemistry

Essential qualification : First class M.Sc. in Chemistry with 12 years experience or doctorate with 10 years experience in bioorganic chemistry as evidenced by publications in reputed journals or patents.

Desirable : Extensive training in synthetic organic chemistry and familiarity with structural analysis of organic compounds using state of the art methods such as mass analysis, NMR, ESR etc. Experience/interest in biologically important molecules such as oligonucleotides, carbohydrates, antibiotics etc.

Job requirement : Development of new synthetic methods or new separation techniques for biomolecules. Interaction with other scientists in designing novel probe molecules, affinity matrices etc. Planning and participation in advanced teaching/training courses organised by the institute.

Post No. 4 : Molecular Biology

Essential qualification : First class M.Sc. in physical/biological science with 12 years experience or Ph.D. with 10 years experience in the area of molecular studies of gene expression in prokaryotic or eukaryotic organisms as evidenced by publications in reputed journals or patents.

Desirable : Experience in genetics and molecular biology of yeast, fungi or anaerobic organisms. Proven ability of independent research.

Job requirement : Development of systems for expression of cloned genes of commercial importance. Planning and participation in advanced teaching/training programmes of the Institute.

II. Scientist C (Group IV (2)) : (5 Posts)

Pay Scale Rs. 3000-100-3500-125-4500

Age : Preferably below 35 years, relaxable in deserving cases

In these positions incumbents are expected to assist in the planning and execution of research/infrastructural projects either under the overall supervision of a senior independent investigator or independently and to carry out related activities that may be assigned to the scientist from time to time.

Post No. 5 : Biochemical Engineering

Essential Qualifications : First class B.E./B. Tech. in biochemical/chemical engineering with 6 years experience or M.E./M.Tech. with 4 years or Doctorate with 2 years experience as evidenced by publications in reputed journals, patents or processes in use.

Desirable : Experience in process development related to fermentation for production of antibiotics, industrial biochemicals etc. Working knowledge in one or more of the following : microbial genetics/biochemistry, animal cell culture, molecular biology and mathematical modelling.

Job requirement : Scale up operations frow shake-flask to the pilot plant level; strain improvement programme for antibiotics etc. Planning and participation in advanced teaching/training courses organised by the institute.

Post No. 6 : Bioorganic Chemistry

Essential Qualifications : First class M.Sc. in Chemistry with 6 years research experience or Ph.D. with 2 years research experience in bioorganic chemistry as evidenced by publications in reputed journals or patents.

Desirable : Experience in synthetic organic chemistry especially synthesis of oligonucleotides, antibiotics, carbohydrates, peptides etc. Structural analysis using NMR, mass spectrometry etc.

Job requirement : Development of new synthetic methods or new separation techniques for biomolecules. Interaction with other scientists in designing novel probe molecules, separation matrices etc. Planning and participation in advanced teaching/training courses organised by the institute.

Post No. 7 : Molecular Biology

Essehtial Qualifications : First class M.Sc. in physical/biological science with 6 years experience or Ph.D. with 2 years experience in molecular biology as evidenced by publications in reputed journals or patents.

Desirable : Experience in genetics or molecular biology of yeast, fungi or anaerobic organisms.

Job requirement : Development of systems for expression of cloned genes of commercial importance. Planning and participation in advanced teaching/training programmes of the institute.

Post No 8 : Veterinary Science

Essential Qualifications : First class M.Sc. in Veterinary Science or M.V.Sc. with consistently good academic record

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ASSOCIATION OF INDIAN UNIVERSITIES

AIU HOUSE, 16 KOTLA MARG, NEW DELHI-110002

Applications in the prescribed form available on payment of Rs. 2/- from the Office of the Association are invited from Indian citizens for the post of Programmer in the Pay Scale of Rs. 2200-75-2800-EB-100-4000. **Essential Qualification :** Master's degree preferably in Physics, Mathematics or Statistics from recognised University and one year diploma in Computer Application from recognised Institute. **Experience :** Atleast two years' experience in Data Processing/DTP work.

The post carries usual allowances admissible to AIU employees generally at Government of India rates. Last date of receipt of applications is **June 10, 1990.**

with 6 years experience or Ph.D. with 2 years experience in care, handling and breeding of laboratory animals.

Desirable : Knowledge/experience in animal genetics, testing and maintenance of inbred strains.]

Job Description : This is primarily a service position in which the incumbent will be responsible for maintenance of a modern animal house facility for biomedical research. The duties include procurement, breeding and supply of laboratory animals required for research in the institute,

Post No. 9 : Electron Microscopy

Essential Qualifications : First class M.Sc. in biological/physical sciences with consistently good academic record with 6 years experience or Ph.D. with 2 years experience primarily involving use of electron microscope for ultrastructural studies of biological materials.

Desirable : Knowledge/experience of newer ultrastructural methods include immunoelectron microscopy, freeze-fracture, freeze-etching, etc. Publications on use and development of ultrastructural methods.

Job Description : The incumbent will be responsible for operation of a state-of-the-art electron microscope facility (scanning and transmission) and will be expected to interact with other scientists of the Institute to provide assistance/collaboration in ultrastructural studies of biological materials.

III. Scientist B (Group IV (1)) : (7 Posts) 2 posts reserved for SC & 2 Posts for ST candidates)

Pay Scale : 2200-75-2800-EB-100-4000.

Age : Below 30 years (relaxable in case of SC/ST candidates by 5 years).

In these positions, the incumbents will work under the supervision of senior scientists in ongoing research projects of the institute and carry out related activities assigned to them from time-to-time.

Post No. 10 : Biochemisty (Reserved for SC candidates)

Essential qualifications : First class M.Sc. in Biochemistry or Biotechnology with consistently good academic record or Ph.D.

Desirable : Experience/knowledge/aptitude in one or more of the following areas : recombinant DNA technology, molecular genetics, enzymology, electron microscopy, animal cell culture.

Past No. 11 : Microbiology (Reserved for SC candidates)

Essential qualifications : First class M.Sc. in Microbiology or Biotechnology or Biochemistry with consistently good academic record or Ph D.

Desirable : Experience/knowledge/aptitude in one or more of the following areas : microbial taxonomy, microbial genetics, antibiotics, microbial metabolism.

Post No. 12 : Biochemical Engineering (Reserved for ST candidates).

Essential qualifications : First class B.E./B.Tech. in Biochemical/Chemical Engineering.

Desirable : Experience/knowledge in one or more of the following areas : fermentation process development, design of bioreactors, computer simulation studies, genetic engineering, animal cell culture.

Post No. 13 & 14 : Planning & Industrial Liaison (One post reserved for ST Candidates)

Essential qualifications : First class M Sc. or equivalent in biological-/physical sciences/economics/business administration with consistently good academic record and familiarity with the use of computers.

Desirable : Ability to edit/write reports dealing with scientific subjects.

Job Description : The incumbent will be expected to compile, collate, enter and retrieve data regarding project personnel, progress, costs etc. into computers. Assist in the preparation of various technical reports. The incumbent should have an aptitude for interacting with various organizations to nurture/develop useful linkages in the areas of the activities of the institute.

Post No. 15 : Veterinary Science

Essential qualifications : First class M Sc. in Veterinary Science of M.V.Sc. with consistently good academic record, or Ph.D.

Desirable : Knowledge/experience in animal genetics, testing and maintenance of inbred strains and care, handling and breeding of laboratory animals.

Job Description : This is primarily a service position in which the incumbent will be responsible for assisting in the maintenance of a modern animal house facility for biomedical research. The duties include procurement, breeding and supply of laboratory animals required for research in the institute.

Post No. 16 : Electron Microscopy

Essential qualifications : First class M.Sc. in biological/physical sciences with consistently good academic record or Ph D.

S.N.D.T. WOMEN'S UNIVERSITY
1, NATHIBAI THACKERSEY ROAD
BOMBAY-400 020

Advertisement No. 22 **Dated : May 16, 1990**

Applications are invited for the following posts to be filled in at the L.T. College of Nursing, Bombay-20, in the prescribed form only, available on payment by M.O. or in cash of Rs. 25/- for Teaching and Rs 15/- for Non-teaching on any working day, so as to reach the undersigned on or before June 5, 1990.

Sr. No.	Name of the Post	Total Post	Reserved Post	Medium
*1.	Lecturer in Nursing	3	1 (5th time Adv.)	ENGLISH
*2.	Assistant Lecturer in Nursing	7 (Temp)	1 (Temp.) (1st time Adv.)	ENGLISH
3.	Ward Sister	1	—	—
*4.	Staff Nurse	8	1 (5th time Adv.)	—

Please collect details of required qualifications, scales and other general conditions of the post, from the University office counter alongwith application form. *indicate post "reserved" for SC/ST/DNT/NT category and will be filled in as per Govt. directives. Local applicants should submit their application forms duly filled in to Inward clerk, Stores Dept. of the University, Bombay-20 within the time scheduled.

P.K. Thakkar
REGISTRAR

Desirable : Knowledge/experience in the use and operation of electron microscope.

Job Description : The incumbent will be responsible for assisting in the operation of a state-of-the-art electron microscope facility (scanning and transmission) and will be expected to interact with other scientists of the institute to provide assistance/collaboration in ultrastructural studies of biological materials.

IV. Security Officer : 1 Post
(Rs. 3000-100-3500-125-4500)

Essential qualifications : A Degree from a recognised University or equivalent with atleast 5 years experience in a similar position in a large Industrial Undertaking, Research Laboratory. Police or Defence Services. Candidate should be well conversant with modern methods of industrial/laboratory security, fire protection etc. Should be able to handle fire arms and should possess good physique and personality. Preference will be give to Ex-Army/Air Force/Naval Officer.

Job requirement : The incumbent will be responsible for overall security, cleanliness and safety of the campus including laboratories and residential areas to be managed through contractual agencies for various jobs. He would also be responsible for overall management of the guest house, hostel, community centre etc. as well as liaison with local police authorities and any other responsibility as may be assigned.

Age : Preferably below 35 years relaxable for Ex. Army/Air Force/Naval personnel.

V. Jr. Hindi Translator : 1 Post
(Rs. 1400-40-1600 50-2300-EB-60-2600)

Essential Qualifications : 1. Master's degree of a recognised University in any subject with Hindi & English as main subjects at degree level, or 2. Bachelor's degree with Hindi and English as main subjects or either of the two as medium of examination and other as a main subject plus recognised Dip. Certificate Course in translation from Hindi to English and vice versa or two years experience of translation work from Hindi to English and vice versa in Central/State Government Offices, including Government of India Undertakings, reputed publishing organizations, etc.

Desirable : Ability/aptitude for handling word processors/typing manuscripts. Candidates with flair for writing in Hindi on scientific matters will be preferred.

Job requirements : The incumbent will be required to translate and type official correspondence/scientific literature, etc. from English to Hindi and vice versa. He/she may also be required to do original office work in Hindi and any other work as may be assigned.

Age : Not exceeding 28 years (as on 1-5-90).

General Conditions

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Persons working in Government Department/Undertaking/ Autonomous Bodies should send their applications through proper channel but should send an advance copy.

Candidates not found suitable for the post applied for may be offered in lower position as advertised. They may so indicate in the application if they would be agreeable to be considered for a lower post.

Application forms can be had free of cost from the Director Institute of Microbial Technology, Post Box 1304, Sector 39A, Chandigarh. In case, application form is desired by post, the request indicating No. of Advertisement, Name of the post applied for etc. may be accompanied by a self-addressed envelope of 22 cms. x 10 cms. bearing postage stamp of Rs. 1.40. Complete application in the prescribed form together with non-refundable application fee of Rs. 8/- (no fee in case of Scheduled Caste/Scheduled Tribe candidates) by means of crossed Indian Postal Order drawn in favour of Director, Institute of Microbial Technology, Chandigarh alongwith attested copies of testimonials/certificates should reach the Director, Institute of Microbial Technology, Post Box No. 1304, | Sector 39A, Chandigarh-160036 latest by June 30, 1990.

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Housing may be provided as per rules.

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Prof. S.M. Siddiqui
REGISTRAR

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University News

MONDAY, JUNE 4, 1990

Rs. 2.50

GNDU Convocation

VI Convocation of the Guru Nanak Dev University. From L to R: Bhai Mohan Singh, Chairman, Ranbaxy Laboratories, hri I.K. Gujral, Union Minister for External Affairs, who delivered the convocation address, Shri G.S. Randhawa, ice-Chancellor, Prof. S.S. Minhas, Speaker, Punjab Vidhan Sabha and Dr. J.S. Neki, former Director, PGI, Chandigarh.

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Editor :
SUTINDER SINGH

HIGHER TECHNICAL EDUCATION
A Development Perspective

R.K. Singh*

Educational system has been facing crisis of various kinds, from declining quality and development of inequalities to total irrelevance. To quote from a UGC paper 'Development of Higher Education in India' published over a decade ago, the system is "in a state of crisis due to uncontrolled and unplanned expansion, inadequate inputs in terms of money, material and talent, falling standards in a large proportion of institutions, weakening of student motivation, increase of educated unemployment, weakening of discipline and dysfunctionalities created by the adverse effect of socio-economic problems, a lack of relevance and significance, and because of undue political interference by subjecting universities to political and partisan pressures and lack of a national consensus in dealing with such situations..."

The critical reflection made here is intended to see higher education as a relevant, systematic, cost-effective and productive sector, integral to local, regional and national development. It is written with the perspective of development to stress, among other things, internal reforms and continued improvement of the existing management and organizational mechanism and search for rational alternatives in the 1990s.

No real change will take place unless such steps are taken that effect the system as a whole, both now and in the future. What is greatly missing is a considered intention, a clearly conceived objective, and sufficient firmness of purpose to bring about a profound and lasting improvement. In the 1990s, we would need (i) experimenting with innovation, (ii) searching for new and more varied means of financing education including research, (iii) reducing the waste of financial and human resources, (iv) less and less dependence on imported models, and (v) highly decentralized administration with wide participation of teachers and students at all levels.

New Education Policy

In the light of the New Education Policy document (1986), which seeks to make education culture sensitive to eliminate inequality, to overcome discrimination and disadvantages, and to liberate talents, the educational strategies in technical/engineering institutions must change to incorporate new socio-economic and cultural trends in our society; these should pave the way for an R & D based science and technology education that links laboratory to the production line with a total understanding of socio-economic imbalances and wider societal aspirations. The length and breadth of technical education therefore should be recast in national perspective (i) to reduce the stereotyped functions and situations for a particular trade or profession, (ii) to eliminate the elite values vis-a-vis the fast envolving socio-economic consciousness of the democratic set up, (iii) to accelerate the development of indigenous technology, (iv) to break down bureaucratic aspects of educational activities, and (v) to bring about a rapid decentralization of administration.

**Head, Department of Humanities and Social Sciences, Indian School of Mines, Dhanbad-826004.*

Rational Changes

As the administrative machinery in most institutions has distanced itself from reality, ignoring the majority of teachers and students, and as there is hardly any effective collaboration among practising researchers and decision-making bodies, (i) various cliques of vested interests have been obstructing change and growth, (ii) research activities have failed to contribute to the basic teaching, and (iii) reforms in educational practices have not fed on teaching experiences or national needs. Instead of innovative initiatives and positive reforms, the scene has been characterized by uncoordinated measures, leading to further deterioration in academic, administrative, and financial management.

Though it has been all along acknowledged that curriculum planning, teaching, and research and development activities should not only aim at development of the students' critical imagination and intellectual liberation but also keep pace with the socio-economic growth in the country, in actual practice these have proved retrogressive, in that education of science and technology has been treated as merely 'knowledge' and not as a method and attitude, a tool for changing perceptions and value systems. The future of various engineering colleges and scientific and technical institutions lies in democracy, humanistic development and rational change. The aim and standard of education need re-defining for development of students with a dynamic, non-conformist and non-conservative frame of mind. The objectives of the New Education Policy cannot be realized unless the administrators in technical institutions also visualize a 'holistic' education based in the pluralistic reality of the country which will "intensify the nation-wide effort in human resource development. with education playing its multifaceted role".

Dynamic Management

Though reformation of the system should be a continuous process, change in the attitude is basic for any step toward overhauling. The existing bureaucratic and largely non-performing system needs to be replaced by an administrative system which is flexible, capable of self-correction, and promoting sustainable and growth intensive academic and R&D functions at the centres of higher learning. In other words, there is need for a dynamic management which can generate socio-economic systems that are built on technical knowledge on a self-reliant and sustained basis, and technological systems that can continuously search for new solutions. In essence, academic management should not be a static state of affairs but an ongoing process of change and adaptation in which the exploitation of resources, the direction of investments, the orientation of technological developments and organizational changes are all in harmony and enhance both current and future potential to meet human needs and aspirations.

Qualitative Expansion

In the past decade most of the technical institutions have expanded quantitatively, i.e. building, equipment, teaching staff etc., but as it has been noted, quantitative expansion does not go hand in hand with quality and efficient education. Huge financial resources have been laid out to develop the institutions physically but results have fallen short of expectations. Now, their strategy of physical expansion must be modified and priorities re-set according to the future needs with a continuous reappraisal of meaningful, qualitative achievement. Before further expansion is thought of, quantitative development made in the past should be consolidated toward a qualitative development. In the coming decade, it is imperative that scientific research and technological development are adapted to the needs of economy (and even overall educational planning to the anticipated requirements of the society).

Sustainable Development

While there is need for basic research of a much higher order in science and technology, R&D strategies must be geared to the problems of sustainable national development, particularly rural development. As suggested in the Report of the World Commission on Environment and Development (Brundtland Report 1987), all R&D programmes must aim at "sustainability" at all levels, meeting "the needs of the present without compromising the ability of future generations to meet their own needs." Just as scientific and technical curricula should be adapted to the local needs and resources, R & D techniques should be responsive to the social problems, to the realities of production and consumption; the benefits of academic research must be visible in the economic standard of the largest segment of our population, perhaps in the form of products, new plant varieties, new technologies, new improved sources of energy, tangible goods, processes, methods, systems, etc., attempts should be directed at getting rid of accumulated rigidities and impediments in R & D and combining traditional and modern expertise in areas such as

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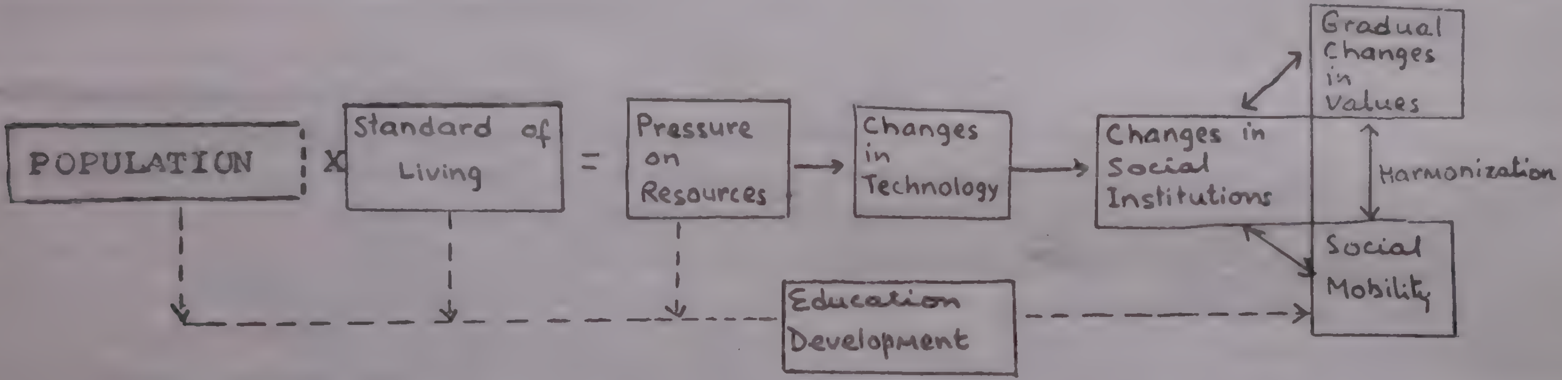
agriculture and food related research, livestock management, environmental protection, eco-development, surface and underground water management, biotechnology, etc. with changes in the perception of society, order of values, and approach to life.

Educational Development & Social Change

The dynamic process of educational development and social change should be appreciated as linked with forces like demographic, cultural and historical, political, economic, social, individual, regional and international, information, communication and media, and ecological. Hans Reiff has sketched educational development as a function of different dynamic processes in the environment of education over a period of time :



Thus, perhaps each institution of higher learning must visualize needs of the 1990s and undertake every year atleast ten different application-oriented research topics for undergraduate projects each in the areas of fabricating, testing, producing and reforming/improving the existing methods of materials, so that students could be sensitized to the need for creativity, relevance, and problem-solving and, at a later stage, could also take up R&D functions independently. Technical institutions should also identify every year at least ten specific research areas of local/regional importance besides promoting inter-disciplinary research, technological transformation through discovery and application, and development of self-supporting research units so that in due course of time relevant research activities could also generate resources for further innovation and excellence, economic growth, and reduction of pressures on the natural environment.

Concern for Environment

Since environmental/ecological balance and development are mutually reinforcing, R & D in technical institutions, nay, in all centres of higher education, needs to be integrated with the basic design and economics of productive and service sectors of the economy. In a country like India, which has been experiencing natural resource depletion and pollution on a large scale, there is an immense need for an academic redirection, particularly in sectors like energy, mineral, forestry, agriculture, water, etc. The technological novelties of recent years require a careful assessment vis-a-vis research priorities and resource mobilization to curb vicious cycle of poverty and environmental degradation. Institutions of higher learning need to support researches, technologies and decisions that (i) integrate economy and ecology, (ii) promote growth that is less energy-intensive and meets the essential needs of the expanding population, (iii) conserves and enhances the resource base by finding out alternative means of production and consumption, and (iv) reorients technologies towards small scale self reliant approaches at the local or national level without degrading environment.

Monitoring Mechanism

To give a proper direction to research and development, therefore, an active mechanism at institutional level should be evolved to monitor and hold over all responsibility of the R&D activities, particularly investment and return. It should make proper assessment of all R & D activities including the performance of various Research Committees. In fact, forums, wherever existing, like Academic Council, Departmental Advisory Committee, Departmental Research Committee etc. should be activated, redirected and utilized to the maximum in redesigning courses/programmes, in meeting the demands of various specializations better, in appreciating problems and aspirations of high technology industry, in interacting with R & D of industries, in negotiating with industries to set up their R & D units at academic institutions, in sharing of facilities inter-institutionally, in setting up national research facilities within the university system with autonomous management and developing atleast 2-3 self-supporting research centres in each institution, in evolving networking systems to facilitate interdisciplinary research and collaborations with industry, in suggesting measures for quality research and correlating it with basic teaching, etc.

Nevertheless, individuals and groups should be supported on merit in carrying out high quality research including fundamental and application-oriented research. Though steps to harness talents in a particular field must be taken and we should not hesitate to spend money for academic purposes, wasteful practices should be stopped. The situation as it stands today is highly negative in that money is squandered in 'foreign travel', national/international workshops/seminars and collaborations that benefit only certain key individuals rather than the institution, industry or society.

Maybe, there could also be an Academic Vigilance Commission (on regional/national basis) whose independence and impartiality is inbuilt to monitor all research and development and academic activities that have far reaching future significance to the nation, and also to watch whether specialized universities/colleges are functioning to realize the avowed aims of socio-economic and moral development of the future society. The Commission should monitor all R & D that affect environment, creation of a viable research atmosphere, improvement of scientific/technical education opportunities, professional reward system, and development of strong information bases.

Coordination Between Academic Institutions and Job-giving Agencies

As the specialized institutions of higher learning cater to the needs of certain professions, like Mining and Petroleum Engineering, Mineral Sciences and Electronics etc., it is necessary that there is a constant interaction between the industries and the faculties. The courses should be realistically framed according to the needs of the industry and the national policy of socio-economic growth. It should be a planned education with full coordination between the governmental and industrial agencies that give employment to the graduates turned out from these institutions. What seems more desirable is a continuous study of the job market. The students' intake should be according to the possible consumption of the output by the employing agencies. The emphasis, however, should be on opportunities for self-learning with less and less institutional dependence. The course material and training should provide for maximum vocational mobility in employment, facilitating conversion from one branch to another.

It may be very positive if each specialized institution has a scheme for exchange of personnel between academic institutions and job-providing industries; teachers of various professional subjects may be sent to fields for first hand experience for at least one to two years at regular intervals (of say five years) as it will also facilitate their drawing up a more realistic and purposeful curriculum besides updating their own professional knowledge and skills and thus enable them to discharge their responsibilities not only to regular teaching but also to short term, in-training and refresher courses, wherever offered.

International Collaboration

To enlarge their professional activities, institutions should be involved in international cooperation for local development. They may seek collaboration from industries and institutions in countries with expertise and even financial assistance from various international development agencies for their research and development projects of mutual interest. Priority should also be given to inter-university collaboration, manpower transfer/movement and introduction of new courses that could meet the challenges of new areas, industries or regions.

Continuing Education

Though the importance of short term/refresher courses and consultancy services cannot be minimized in the context of specialized professional institutions, it must be ensured that (1) the basic undergraduate teaching is not neglected, (2) the academic purpose is not lost for monetary advantages, (3) the academic atmosphere is not vitiated, and (4) a uniformly high standard of service and professional competence stressing quality is maintained.

In the coming decade, therefore, what seems more useful and serving the cause of the nation is that more and more low cost part-time courses are started for in-service skilled, semi-skilled workers, technicians and even personnel who do not possess college certificate or professional degree or who have acquired professional training and experience in a particular branch but want to better their academic qualification for moving to some other branch etc. Possibilities of starting certain shorter duration courses for in-job technicians and offering diplomas/certificates or even degrees which are of immediate value in the job market should be explored. Such condensed or shorter duration or part time courses should be flexible taking into account skills and experience acquired by the candidates outside their institutions. There has to be less insistence on formal education. Rather, education by correspondence, various distance and informal education programmes should be encouraged and strengthened to benefit members of both rural and urban sections of the society.

The impetus needed to serve the cause of Adult Education is also to be provided by the continuing education programme in each institution of higher learning. The adult education schemes should envisage betterment of under-privileged people like labourers, peasants and agricultural labourers, mine workers who are untrained or inadequately trained or even illiterate, and are willing to learn something which is useful to them, professionally and otherwise. The adult education/continuing education schemes should also provide computer literacy to various levels of workers.

Teaching of the Subjects of Humanities

It is unfortunate that for decades teaching of the subjects of humanities has not been taken seriously in technical universities and the department considered as merely subsidiary/service department. It has not been allowed to grow in many places and thus, the basic foundation of higher learning neglected. The humanizing and moralizing effects of the teaching of humanities and social sciences have been recognized throughout the world, and at higher technical institutions, in the coming decade, the future technocrats/engineers must be given good knowledge of liberal subjects to realize goals of social transformation and national development; they should be given options to study belletrist literature along with the literatures revealing the nation's 5000 years old tradition and holistic culture, which is characterized by universality, flexibility, eclecticism, liberalism, tolerance, assimilation and adaptation. Therefore, facilities for post-graduate and doctoral studies in emerging inter-disciplinary areas like ethnic communication and cross-cultural adaptation, translations, bilingual creativity, science and its cultural development, tribal and/or local folklore, new arts and literatures, language variation and change, history and philosophy of science, applied language studies, classical and foreign languages, pragmatics, semiotics, terminological studies, anthropology and aesthetics, comparative studies in society and history, etc. should also be developed with adequate manpower support and promotional avenues.

To Sum Up

(1) All future attempts at change in the existing system of management and organization of higher education and research should be delinked with the politics of convenience and consciously and purposefully directed with the aim of making education and research relevant, productive and integral to national development.

(2) Teaching strategies should be changed. Instead of wasting energy over what to teach and how to teach or what someone should learn, the nucleus of the strategy should be what situation, things or people would induce the learners to learn and make them active collaborators in the nation's socio-economic development. It should be adaptable to the new needs and circumstances in the country and cater to the democratic values besides creating a dynamic, non-conformist mental and intellectual make up.

(3) The aim and standard of higher education should be redefined, visualizing a 'holistic', R & D based 'sustainable' and growth intensive education adapted to the local needs and resources, and promoting closer collaboration among teachers, researchers and decision and policy-making bodies. Quantitative development of the R & D activities should move toward consolidation and quality development in order to serve the nation's socio-economic needs and aspirations.

(4) The dynamics of higher education development and social changes should be appreciated with a concern for ecological balance and development, evolving an active mechanism to monitor all R & D programmes, investments and return, besides the performance of various academic forums.

(5) The specialized institutions of higher learning should constantly interact with industries for realistically framing and revising academic curricula, ensuring vocational mobility in employment, manpower planning and exchange, and even securing inter-industrial/inter-institutional and international collaboration including financial assistance in research and development. Since higher education must be financially viable and development oriented, possibilities of effective academia-industry interaction and setting up of high technology R & D units of industries in scientific and technical institutions for pro-

(*Continued on page 11*)

Stress : Manifestations, Consequences and Reduction Techniques

Mamota Das*

Concept of Stress

The study of man's reactions to conditions of intense psychological stress has been a major concern of psychological investigations for a long time. The concept of "stress" is one of the most significant concepts ever developed in the social and biochemical sciences. However, its potential as a prime intellectual tool for not only understanding but also explaining individual and collective human behavior and disorders has not yet been fully realized. What has hampered the adequate use of the concept of stress is the fact that different investigations have employed somewhat different referents or meanings for the term stress and thus have employed different explicit or implicit models; many of these have ignored important variables (see Burchfield, 1979).

There are many definitions of stress and approaches to research on stress (McGrath, 1970). Some focus on the characteristics of the environment (Shinn, 1979 : Sutton, 1980; Benson, 1975), others on individual differences in perception and appraisal of situations (Woolfolk and Richardson, 1978; Mason, 1971; Lazarus and Cohen, 1977), and still others concentrate on the individual's stress response (Selye, 1978; Kelly, 1967, 1971; Maslach, 1977). Thus definitions of stress have focussed on stimulus—as an external negative force impinging on an individual; response—as an individual's emotional and/or physiological response to external or internal environmental events; or interactional elements—as a person environment problem resulting from perceptions and appraisals of one's internal and/or external environments (French, Rodgers & Cobb, 1974). The latter view of stress is dependent on the work done by Lazarus and his colleagues (Lazarus, Averill & Opton, 1970).

Thus stress is a complicated phenomenon subject to a range of definitions. The four-stage stress cycle process depicted in Figure 1 begins with Stage I, a set of specific demands, or stressors. Excessive meetings, interruptions, and confrontations produce some stress, but how much depends on Stage II, the individual's perception of the demand. If the individual does not have the physical or mental resources to meet the demand, he or she perceives that demand as a stressor. The stress created by this discrepancy between demand and personal resources results in a stress response—Stage III—taking the form of social, physical, attitudinal, and other reactions. The fourth and final stage, termed consequences, pertains to the intensity and long-range negative effects of stress.

Manifestations of Stress

Various studies have investigated the relationship between sources of work stress and the resulting manifestations of stress (Cooper and Marshall, 1976; Warr and Wall, 1975). Manifestations of stress may be physical (peptic ulcer, exhaustion, migraine, cardiovascular disease, diabetes), psychological (anxiety, depression, burnout), or behavioral (deterioration in work performance, detachment, withdrawal). According to Kyriacou and Sutcliffe (1977) however, the distinction between sources of stress and the manifestations of stress may often be unclear. For example, Kyriacou and Sutcliffe (1977) state that poor human relations may be the result of work overload, and thus be considered manifestations of stress, or they may be sources of stress themselves. They state further that physical illnesses, once they occur, can become sources of stress, either directly because of concern over one's health or indirectly, because of financial implications.

McGuire (1979) states that teacher burnout is a condition that results from stress, tension, and anxiety. He also states that it is caused by the many problems that exist in education today such as violence, vandalism, disruptive students, inadequate salaries, involuntary transfers, interfering parents, over-sized classes, and excessive paperwork.

Dunham (1976) states that there are two main types of stress responses. The first is frustration. The second is anxiety. Cases of severe anxiety may lead to psychosomatic symptoms. Prolonged stress can lead to nervous breakdown. Dunham (1976) has stated that absenteeism, truancy, sickness, absence

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and early retirement are forms of withdrawal associated with situations which become too stressful to tolerate.

Consequences of Stress

Studies of work stress have been done in real life situations. Russek (1962) studied symptoms within three professions—medicine, dentistry, and law. Within each of these occupational groups he correctly predicted the relative frequency of hypertension and of coronary heart disease. The inferred stressor in his research seems to be direct responsibility for the well-being or others, especially in combination with the necessity of being directly responsive to many people under continuous time pressure.

The combined stressfulness of responsibility and time pressure is implied in a number of other studies. Foremen and executives in England have been found to have more ulcer disease than the people they supervise (Doll and Jones, 1951); foremen and assistant foremen in Holland have more peptic ulcer than workers under their supervision (Vertin, 1954). Similar results have been reported by Pflanz et al. (1956), and Gosling (1958), Cobb (1974) in a study of air traffic controllers found that hypertension is four times more common among air traffic controllers than among second class airmen, and diabetes and peptic ulcer more than twice as common All three diseases also show earlier dates of onset, and two of them (hypertension and peptic ulcer) show a "traffic effect"—that is, they are more common among traffic controllers assigned to the busier airports.

Research by a number of investigators (Schwartz and Will, 1961; Maslach, 1976; Stotland and Kobler, 1965; Frank, 1963) suggests that organizational conflict and poorly designed jobs can reduce the helping professional's motivation and detrimentally effect his or her performance.

Research conducted by Cherniss et al. (1980) suggests that withdrawal, increasing alienation from work, and dehumanization of clients are psychological and behavioral consequences of strain.

Blau (1960) reports that loss of interest, personal

The Stress Cycle

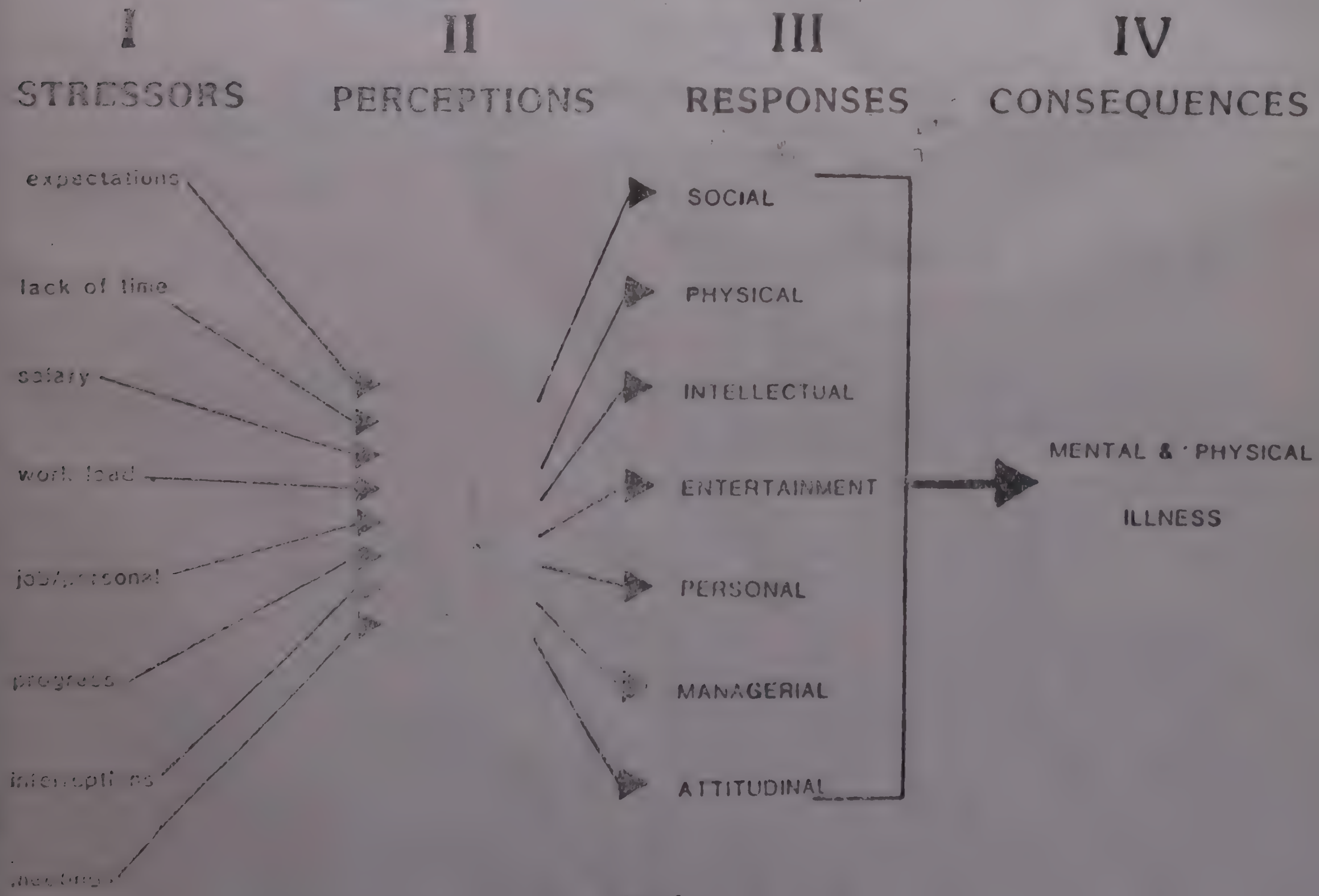
I
STRESSORS
II
PERCEPTIONS
III
RESPONSES
IV
CONSEQUENCES
expectations
lack of time
salary
work load
job/personal
progress
interruptions
meetings
SOCIAL
PHYSICAL
INTELLECTUAL
ENTERTAINMENT
PERSONAL
MANAGERIAL
ATTITUDINAL
MENTAL & PHYSICAL
ILLNESS

Fig. 1

involvement and concern with clients are the results of strain. He refers to this syndrome as reality shock. Others report that alienation and dissatisfaction (Berkeley Planning Associates, 1977), and emotional and physical exhaustion (Freudenberger, 1974), are consequences of strain.

A number of studies have investigated the association between sources of occupational or work stress and the resulting manifestations of stress (Cooper and Marshall, 1976; Warr and Wall, 1975). The manifestations of stress identified may be physical (peptic ulcers, cardiovascular diseases), psychological (depression, anxiety) or behavioral (deterioration in work performance, deterioration in interpersonal relationships). Dunham (1976) has reported that there are two main types of common stress responses among teachers. The first is frustration, and is associated with headaches, stomach upsets, sleep disturbances, hypertension and body rashes, and in prolonged cases, depressive illness. The second is anxiety, and is associated with feelings of inadequacy, loss of confidence, confusion in thinking, and occasionally, panic. Cases of severe anxiety may lead to psychosomatic symptoms such as a twitchy eye, a nervous rash, loss of voice, and weight loss. Prolonged stress can lead to a nervous breakdown. Dunham (1976) has also argued that absenteeism, truancy, leaving teaching, sickness absence and early retirement are forms of withdrawal associated with situations which become too stressful to tolerate. Teacher turnover has also been interpreted as an indicator of teacher stress (Dunham, 1976; Payne, 1974). In England, social priority allowances paid to teachers in designated schools, colloquially called stress allowances, were specifically introduced by the Department of Education and Science in 1975 in an attempt to reduce the high rates of teacher turnover in schools where the teachers were assumed to be under great stress (Kyriacou and Sutcliffe, 1977).

Models for Stress Research

One model which is helpful in understanding the basic concepts of stress and strain and the consequences of strain which can lead to burnout has been described by Shinn (1979).

According to Shinn (Figure 2) stress is defined as a potentially damaging environmental force or condition impinging on the individual. A stressor is an agent of stress. Role conflict, or the impingement of logically inconsistent role demands on an individual is one such stressor (Kahn, 1973). Stressors may be either discrete events (Dohrenwend, 1978; Holmes and Rahe, 1967) or relatively enduring environmental conditions (Langer and Michael, 1963).

Strain is a psychological distress response to stress. Alienation (Berkeley Planning Associates, 1977), expression of dissatisfaction (Taylor and

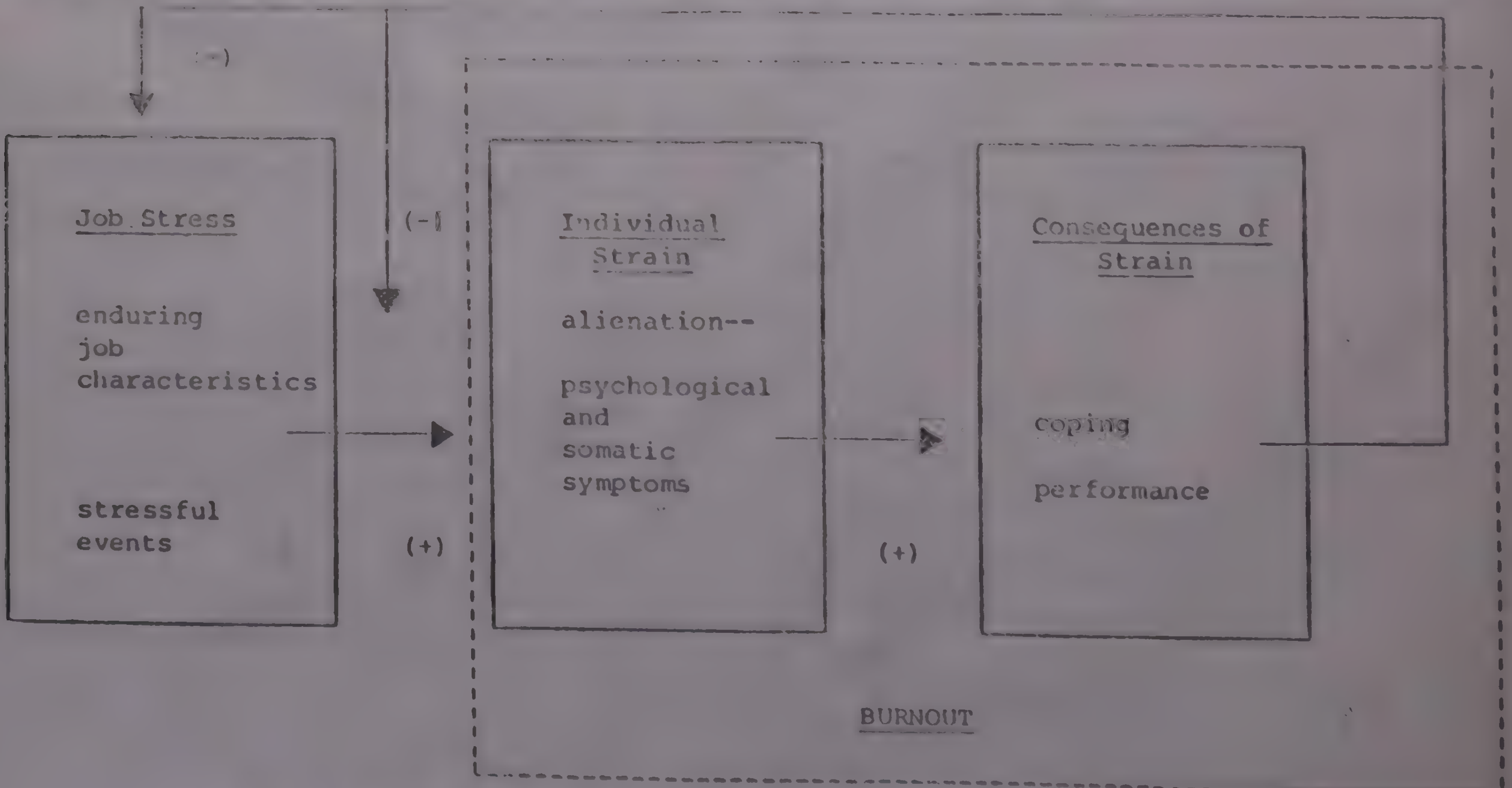

Fig. 2 : Theoretical Model of Stress, Strain and Consequences of Strain

Bowers, 1972), and expression of psychological or somatic symptoms such as depression or headaches (Caplan, Cobb, French, Harrison and Pinneau, 1975), are indicative of strain (Shinn, 1979).

According to Shinn, stress leads to strain, which in turn can have several psychological and behavioral consequences. A major concern is coping, which is defined by Pearlin and Schooler (1978) as "any response to external life stress that serves to prevent, avoid, or control emotional distress". Some theorists conceptualize coping as coextensive with the concept of adaptation (Lazarus, 1978) while others use it only when referring to adaptation under relatively difficult conditions (White, 1974).

A second model for stress research has been developed by French and Kahn (1962), and elaborated by them and their colleagues in the course of subsequent research (Kahn, French, and Cobb, 1974). Referred to as the ISR Model (Figure 3) it views stress as a generic label for a set of phenomena and processes involving six classes of causally-linked variables (Hein et al. 1980) :

(1) Objective organizational environments or situations give rise to;

(2) Psychological perceptions of those environments, including perceptions of stress feelings that environmental demands are excessive relative to the person's abilities or that environmental opportunities are inadequate to justify the person's needs. These perceptions give rise to;

(3) Short-term affective, physiological, or behavioral responses, including responses which may alter the objective environment or the person's perceptions of it. Finally, depending on their nature, intensity, and duration, these responses may lead to more sustained changes in;

(4) Mental and physical health (and disease). Each of these relationships and effects can be conceived of as a process occurring and recurring over time, with the nature of the relationship or effect being conditional upon;

(5) Enduring characteristics of the person; and

(6) That person's inter-personal situation or environment (Hein et al. 1980). For example,

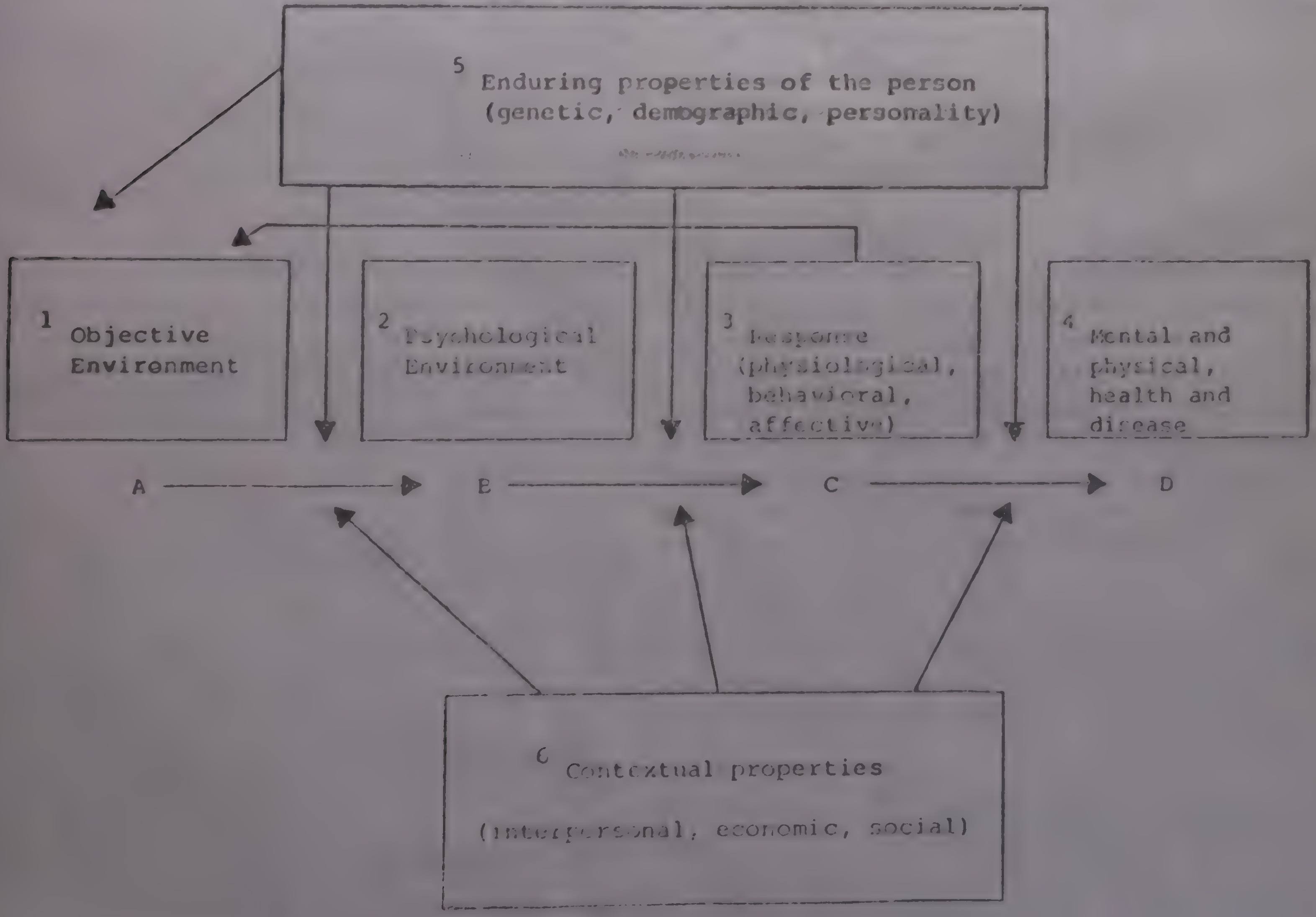
5 Enduring properties of the person
(genetic, demographic, personality)
1 Objective Environment
2 Psychological Environment
3 Response (physiological, behavioral, affective)
4 Mental and physical, health and disease
A
B
C
D
6 Contextual properties
(interpersonal, economic, social)

Fig. 3 : ISR Model

more competent people appear less likely to perceive given objective conditions as stressful (Pearlin and Johnson, 1977) and people with trusty or supportive inter-personal relations are less likely to experience adverse health outcomes in response to perceptions of stress (Cassel, 1976; Cobb, 1976; House, 1980).

Stress Reduction Techniques

The primary feature of the Stress Reduction Model entails progressively and systematically relaxing different sets of muscles from head to toe, either by first tensing and then relaxing (tense and relax) or simply by letting to (moving focus relaxation). However, in addition to this extended form of relaxation training there are brief stress reduction techniques, a combination of cognitive and physical procedures that people can use in anxiety-producing situations to help them reduce the level of stress. Each technique inhibits the physiological reactions to stress by introducing a competing response. There are several rapid relaxation techniques that one may use before, during, or after a tense situation. For example, one procedure involves quickly and simultaneously tensing all of your muscles and then rapidly releasing the tension. A second exercise, breathing focus, involves taking in six slow, deep breaths and imagining the tension flowing out of the body with every exhalation. Stretching and walking, in fact any movement, also help break the tension from stress.

A third group of techniques calls for giving oneself covert instructions before, during, or after stressful occasions. One way is to say a personal phrase such as "calm and relaxed" to yourself when practicing relaxation, coordinating it with deep breathing. Later when you encounter a stressful situation, repeat the phrase and it should induce relaxation, functioning similarly to a post-hypnotic suggestions. Another way is actually to talk to yourself : "This exam isn't going to be easy, but I'll practice relaxing now". If you start to feel overwhelmed in a situation, focus on relaxing. With covert techniques it is important first to become aware of the tension; then give yourself covert stress reduction instructions and perhaps, incorporate brief physical relaxation, such as, slow breathing.

The Stress Reduction Model (Decker Robert) and its associated techniques are useful for helping to deal with (1) test and performance anxieties; (2) the general stresses of their role; (3) negative emotions such as anxiety, anger, and worry that inevitably are aroused in situations; (4) negative subjective states, such as fear and depression; and (5) getting in touch with the creative side of themselves. The physical and mental procedures build on, and interact with, each other; as people relax, they gain energy for their work and for creative activities. These procedures can be used for management of anxiety and anger, and for creativity.

STRESS REDUCTION MODEL

SYNTAX

Phase One :	Phase Two :
Setting the Stage Get people in place. Find a comfortable position. Close eyes.	Warm-Up and Transition Give general orientation and instruction. Establish relaxed atmosphere through voice tone and tempo.
Phase Three :	**Phase Four :**
Moving Focus Relaxation Instruct students to focus on and relax individual parts of body from feet to face (first feet; when thigs, hips and waist; abdomen; lungs and breathing muscles; neck, hands arms, and waist; face; muscles; mouth and tongue). Maintain slow, rhythmic pace.	Wind-Up Practice rest and/or tension and release. Arouse from relaxation.

Phase Five :

Debriefing and Transfer

Obtain feedback from participants as to their reactions, sensations.

Respond to their questions.

Discuss possible uses of method and times to relax.

SOCIAL SYSTEM

The atmosphere is positive, friendly, and open; th pace is relaxed and slow, and the tone is soft.

PRINCIPLES OF REACTION

Note evidence of relaxation. Repeat exercises a necessary. Pace voice tone and tempo with students responses.

SUPPORT SYSTEM

No supporting material is necessary. Comfortabl seating is a big help.

Conclusion

1. The individual is the most important variable; no single coping technique is effective for all individuals in all situations.
2. Individuals cannot change the world around them, but they can change how they relate to it.
3. Coping techniques must be sensitive to cultural, social, psychological, and environmental differences in individuals.
4. Individuals who cope best develop a repertoire of techniques to counteract different stressors in different situations.
5. An individual's repertoire of techniques should represent a holistic approach to coping, including known effective strategies such as physical activity, occupational skills, social support, personal hobbies, entertainment, intellectual stimulation, and supportive attitudes (Gmelch, 1984). ☐

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Higher Technical Education

(*Continued from page 5*)

duct/process-oriented research should be explored in educational planning and management.

(6) The continuing education programme needs to be revitalized to serve the learning needs of several sections of adult workers who have been ignored but whose efficiency can be increased manifold, with introduction of low cost part time courses with less insistence on formal education. Attitude to the teaching of and research in the subjects of humanities in specialized centres of higher education also needs to be changed if the goals of social transformation and national development are to be pursued with human sensitivities. ☐

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Centre for Professional Development

A New Experiment at Delhi University

N.K. Uberoi*

Background

A present day university in our country is under a spell of great criticism for its non-performance or poor performance. It is not the purpose to go into the details and repeat the multifacet ailments afflicting the universities, and the remedies thereof. They have been very skillfully identified by the eminent educationalists through the columns of the *University News* and the other media. However, one of the remedies or corrective measures namely, the professional development of the faculty did not get a due share of discussion in the media. One reason may be that the thinking in this regard could not be clearly articulated for want of experience.

There are no two opinions about the necessity of professional development as an essential factor, both for the career development of the individual teacher and for the general health of the university system and its development in terms of pedagogic, research and organizational set up

The UGC must be complimented for its scheme of Academic Staff Colleges meant for the professional development in Higher Education. As mentioned above the professional development has to be related to the needs of the individual teacher and those of the institution. Analysing it futher, one finds that one of the foremost and an essential component of professional development in Higher Education is to enable a teacher to develop his skill for good teaching. Till now, for almost every teacher in Higher Education, the professional development is left alone. Perhaps the teacher develops this in the same manner as he develops his living style. A minority who come to teaching by their own choice because they are interested in this profession learn good teaching quite early by themselves and continue to learn. Among those who join the teaching profession not by their own choice, a majority if not all, would like to become better teachers when they become aware that they are not performing well.

Awareness is thus the first step. The next step is how to enable them to become better teachers. The first step itself is an important task. A well conceived Centre for Professional Development has its aim to accomplish the task of awareness. The task of enabling a teacher to do better teaching, a very crucial and central point is a larger question. The Centre for Professional Development can meet this requirement by providing an imaginative input in the form of professional updating, though this alone is not enough to prepare a teacher to learn for better teaching.

A motivational input is equally essential and the basic requirement for motivation is to make teaching a joyful, thrilling and satisfying activity. The determinants of such an activity are partially found within the university system and partially in the socio-political milieu of the society. To provide details of the socio-political milieu that affects the teacher and the teaching profession is not the subject of discussion here.

In any case, the role of a Centre is pivotal and crucial in the professional development in Higher Education and in the development of the University.

The Experiment

It is in the light of the above background that the Delhi University set up the Centre for Professional Development in Higher Education (CPDHE). The University is ideally suited for this purpose. Firstly, its faculties, colleges and the other institutions through its certain built-in structural qualities and the instrument of statutory staff councils, are involved in the self assessment process. The result is that the university has developed a great degree of perceptability towards the negative effects and the dangers of academic obsolescence and bad teaching. Secondly, the university is well equipped to stop the manifestation of these negative effects with its inherent qualities. Its faculty with high degree of academic achievement, its Advance Centres and the Centres of Special Assistance are capable not only to undertake the responsibilities of professional development of its own faculty but also providing such facility for the

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faculty of other universities. The Orientation and the Refresher Courses conducted by the CPDHE bear testimony to these facts (The reader may refer to the reports—1989 of the 24 courses conducted by the CPDHE).

The CPDHE of Delhi University has through its activities created a climate which brings about an awareness about the utility of the intensive learning and the futility of intensive teaching among the teacher-participants. The participants share with each other their own meaning and the excitement or dullness of their experiences in a spirit that has been elaborated by Prof. Yashpal in his 'open letter to the Fellow Academics and the Friends of Academia' (pages 6-7). The efforts have been made at the CPDHE to enable the participants to ponder about teaching and to make it more satisfying through its Orientation Courses and to help them in professional updating through its Refresher and Experimental Courses. We have adopted an approach in which the Centre's programmes are integrated with the departments, colleges ond the other institutions of the university, with every fibre of its being.

There is involvement of the faculty of the various departments and the colleges and the representatives of the prospective participants at every stage of planning and implementation of each course. This approach has been most rewarding. Any other approach could be counter-productive as has been spelt out by the former Vice-Chancellor, Prof. Moonis Raza whose contribution in shaping of the CPDHE would always be remembered.

The CPDHE has developed many course modules and has been adopting them in its various programmes of Orientation Courses and Refresher Courses. A module for the Orientation Course is reproduced at the end. This module is a package for a four weeks Orientation Course. Two or sometimes three lecture cum discussion sessions are held daily during the working hours between 10.00 A.M. and 4.30 P.M. Each lecture of about an hour's duration is followed by discussions for two hours. Each session is evaluated and the evaluation of each course is done through standard techniques.

We feel that this 'New Experiment' of Professional development will be a beginning of a new era of academic rejuvenation.

Suggestions to the UGC

Based on our experience we have sent the following suggestions to the UGC :

In accordance with the UGC rules teachers having teaching experience upto eight years are to be invited for participation in the Orientation Course. In our opinion there need not be any such limit of teaching experience for participation in the Orientation Course. Why should one presume that a teacher with a longer experience is less receptive to learning.

We have suggested to the UGC to remove this limit of teaching experience as the basis for participation in the Orientation Courses. Further, we have noticed that a teacher after the completion of Orientation/Refresher Course becomes aware of the dangers of statical academic conditions. He wants to change them. He appreciates the importance of tutorials and seminars and wants to be innovative. He realises the utility of intensive learning and the futility of excessive teaching. But when he returns to his institution he is in a dilemma. He is one out of 100 or so faculty members in a college or one junior teacher in a particular department that has 10-15 faculty members in which others did not have any chance for participation in the professional developmental activity. The latter category of faculty, perhaps would not appreciate the enthusiasm of the colleague who has the exposure to Orientation/Refresher programmes.

Under such circumstances, the professional development programmes in the form of Orientation and Refresher Courses may not have an impact as visualised in the scheme. We therefore, have suggested to the UGC that all or almost all the teachers from anyone department of a college should be invited together for participation in a course. Suppose in an Orientation Course we have a batch of 40 participants; we should choose them out of six or seven colleges of catchment area and invite all the teachers from any single department, the presumption being that an average strength of faculty in a department is 6-7 teachers.

Thus from college 'A' all teachers of History Department, from college 'B' all the teachers of Botany Department and from the college 'C' all the teachers of Hindi Department and so on, should be invited with the result that we have a batch which is heterogeneous but also homogeneous in the sense that it has all the teachers of one particular department of a particular college. There could be more variations around this arrangement keeping in mind that all the members of faculty of a department of an institution participate together. It would then be possible that all teachers of the department, as a unit would be enabled to evolve their perceptions towards teaching-learning process, their teaching strategies and a host of other related problems as set out in the Module. This unit after the completion of the course would serve as an innovative nucleus at the college and the other departments may emulate it.

We hope the UGC ponders over and considers these suggestions. □

ANNEXURE

MODULE 1

Course Litle : Orientation Course
Course Incharge :
Course Coordinator :

Rational and Objectives

Education if deeply embeded in social situation and intrinsically interwind with the development process can play a crucial anthropogenetic lever of social transformation and an instrument of modernization of society and its tradition.

With the above understanding the role of teachers in higher education becomes very important. It is a long felt need that the teachers while carrying out their responsibilities of imparting knowledge and working for creation of skills among the new generation, should sit together and discuss indepth their own strategy to fulfil the desired responsibility entrusted to them.

However for deeper and meaningful understanding of higher education system, firstly there is need for identification of the main characteristics of values, their relevance and suitability in the present day context. Secondly, there is need of critical review of the structure and management of higher education their suitability and usefulness for fulfilment of the task entrusted with it. Thirdly, in order to carry out the responsibilities of transmission of knowledge and skill formation, teachers should know the socio-psychological characteristics and problems of the clientele group they are going to deal with. Fourthly, the teachers, for completion of their task should sit together and discuss and make a critical overview of their ways of knowledge dissemination and skill formation. Therefore pre-planning and suitability of techniques under use is a basic requirement of successful completion of the task. Last but not the least, it is essential that certain contemporary issues and the role of science and technology must get a proper place in any system of higher education.

Keeping in view the above mentioned points the Orientation Course of 4-weeks' duration which is meant to sensitize teachers, is designed as follows :

1. The programme of the Orientation Course has two components :

(a) General Component covering teachers from all disciplines—3 weeks.

(b) Discipline specific component—1 week.

2. The general component consists of 36 discussion sessions each following an opening statement by senior academic/expert. The topics of discussion are enlisted below 'A'.

3. The discipline specific component consists of a small introductory unit, followed by work in small groups for a week. This is enlisted below 'B'. The participants prepare a project report for the Discipline Specific Component and submit it to the Centre on the last day of the Course.

General Component 'A'

A. *Societal Context of Higher Education*

Education and Development
Characteristics of Colonial Higher Education
Role of Higher Education in the Development Process
Higher Education and Manpower Planning
Higher Education and Transmission of Values—Commitment and Objectivity
Higher Education—Symbiosis of Research and Teachin
Structure of Higher Education in India

B. *Management of Higher Education in India*

Role of the Government, the UGC and the AIU and othe Organisations and Institutions
Issues in Management—Autonomy and Accountabilit Equity and Efficiency
Issues In Management—Dissent and Discipline Regimentation and Anarchy, Democracy and Authority
Role of Teachers' Association
Management Structure of University of Delhi

C. *Psycho-Sociological Dimension of University Education*

Introducing Concepts
Coming to the University—a way of life
What does it mean to be a University teacher ?
University Education in a Cosmopolitan city
Problems and Characteristics of Scheduled Castes, Trib Students and Foreign Students
Rural Urban Dichotomy and the Youth
Govt School vs Public School Background Students
The Growing Adult and the Process of learning—so insights from Psychology
Adolescents in the University Community and Me Health
Ecology, Human Development and Quality of Life w special reference to the value of recreation for youth
Psychological Perspectives on Hostel Life
Women in Higher Education
Integrated approach to the Development of Youth
Student-Teacher Relationship

D. *Functions of Teachers in Higher Education*

Imparting of Knowledge—Lecture Method

Imparting of Knowledge—Tutorials and Preceptorials; Seminars/Discussions

Imparting of Knowledge—Project Work, Practicals and Field Work

Use of Audio-Visual Aids

Evaluation of Instructions

Framing a Question Paper

Objective items/Short Answer tests

Evaluating Practical Work/Projects

Generating knowledge I

Generating knowledge II

Extension Work

Participation in Institutional Management with particular reference to corporate life and guiding Students Services

Mix of Functions

Conditions of Service of Teachers

Material Conditions

Career and Professional Development

Evaluation of Work

Contemporary Issues, Science and Technology in Higher Education

Generation Gap

Environment and Society

Science and Society

Energy Scenario in the country

Modern Technology in Health Care

Subject Specific Components 'B'

The first day is devoted to the discussion of undergraduate syllabus of the subject concerned—its objective as well as structure and the suitability or otherwise of specific instruction methods for each of its components. The discussion usually takes place after an opening statement by a senior academic

During the rest of the five days, the group to begin with discusses the nature of the task of the day and then breaks up into smaller units, each having a Rapporteur, to work on aspects decided upon. The work of the day ends with the entire group meeting again to discuss the findings of the smaller groups. The following problems are taken up, one each on the five days :

Breaking up the syllabus into LTP

Preparing synopsis of lecture and reading list for the same

Preparing objective item tests

Identifying topics for tutorials/practical exercises/project work

Framing a question paper

Suggestions about the review of syllabus.

Jagadguru Sri Shivarathreeshwara Mahavidyapeetha
RAMANUJA ROAD, MYSORE-570 004
J.S.S. COLLEGE OF PHARMACY
Sri Shivarathreeshwara Nagara, MYSORE-570 015. Phone : 27583
(Affiliated to University of Mysore for B. Pharm Course)
AND
(Affiliated to the Pharmacy Council of India for D. Pharm Course)
ADMISSION NOTIFICATION—1990-91

Applications are invited for Admission to Bachelor in Pharmacy (B. Pharm) and Diploma in Pharmacy (D. Pharm) for the academic year 1990-91.

ELIGIBILITY

1. Diploma in Pharmacy : Two years Course.
   (a) Candidates who have passed S.S.L.C. or equivalent examinations are eligible for admission to I Year D. Pharm.
   (b) Candidates who have passed HSG/PUC/PDC or B Sc., with Science combination are eligible for admission to II D. Pharm.
2. Bachelor in Pharmacy : Four years Course.
   (a) Candidates who have passed II PUC or equivalent examinations with Physics (P), Chemistry (C), Mathematics (M), Biology (B) or PCM or PCB securing not less than 50% of marks (both years of PUC or its equivalent) with Science subjects are eligible for admission.
   OR
   (b) Candidates having 50% aggregate marks in the Final D. Pharm of the two year D. Pharm course conducted by an authority approved by Pharmacy Council of India, are also eligible for admission.
   OR
   (c) B.Sc., Degree of Mysore University with PCM/PCB or a B Sc., Degree with the same combination of subject of any other University with a minimum of 50% of the aggregate marks of all the 3 years of examination. in case of SC/ST the minimum marks required shall be 40%.

Application form with Prospectus can be had from the College on payment of Rs. 50/- by Cash, D.D. or Crossed Indian Postal Order drawn in favour of Principal, J.S.S. College of Pharmacy, Sri Shivarathreeshwara Nagara, Mysore-15, Money Orders will not be accepted.

Hostel facilities are available to both boys and girls.

The session will start from 16th July, 1990 for D. Pharm and 6th August 1990 for B. Pharm. Last date for receiving the application form is 25th June, 1990 for D. Pharm & 15th July, 1990 for B. Pharm.

H.C. Basavanna
SECRETARY

OUR HERITAGE

Hon'ble Mr. I.K. Gujral, Union Minister for External Affairs, delivered the Convocation Address at the 16th Annual Convocation of the Guru Nanak Dev University, Amritsar. "The threat we face from across the border is not merely a military threat. It is an attack on the very basis that the Indian state has been founded--a basis that draws upon this nation's heritage of universal brotherhood, tolerance and humanism," said Mr. Gujral and went on to remind his audience of the glorious heritage they were the heirs to. He said, "the Indian Constitution reflects our heritage of the values of universal brotherhood, compassion and tolerance. Secularism is the political expression of tolerance. Compassion is reflected in constitutional obligations to alleviate poverty, ensure equality of opportunity for all and observe human rights. The constitution recognises the reality of our diversities, yet reaffirms our membership of a common family bound together not by the coercive powers of the State, but a shared commitment to precisely the values preached by sages like Guru Nanak Sahib." Excerpts

This is a time of testing for the people of this ancient land of India, but certainly not for the first time in their history. Guru Nanak Sahib himself lived in a period of acute turbulence. In his time, as in ours, India faces a grave threat from across its borders. Today, as five centuries ago the evils of sectarianism, religious bigotry and intolerance threaten our national and social fabric.

Convocation

The challenges which face us today are not merely political, economic and military ones; they are challenges to our centuries-old heritage of a deep faith in virtues of tolerance, compassion, brotherhood and non-violence. In this too, our present circumstance is not unlike what Guru Nanak Sahib confronted in his own time. And that is why, it seems to me, the message of the great Guru has a contemporary appeal and relevance. The wisdom of his teachings may yet light for us, his sometimes divided and quarrelling children, the sane path of reconciliation and brotherhood, towards unity that transcends but does not submerge our varied faiths and religions.

What was Guru Nanak Sahib's most significant contribution to India's history ? He was the spiritual founder of the Sikh faith, a prophet through whose medium, humankind relearns the pristine virtues of its existence. The philosophy he preached was not a mere mechanical synthesis of the disparate faiths then current in India. His teachings drew inspiration from them all but in their essence went beyond them. It is said that at his birth, the family priest had foretold, "Every creature he will regard as God's creation." He lived by this simple yet profound tenet all his life.

What distinguishes Guru Nanak Sahib from other great saints and seers, is that he preached the philosophy of action and not one of escape from or abandonment of the real world. For him withdrawal from world would be a denial of faith. Faith was reaffirmed by living it. A true man of faith, the Guru said :

> "battled in open field
> with his mind perfectly in control and with his heart poised in love, all the time."

When we reflect on the teachings of this great saint, is it not obvious that those who perpetrate violence and slaughter in the name of religion are not defenders of the faith he preached—a creed of compassion and love, a creed of universal humanism in which "every creature is God's creation".

For centuries, the values of practical piety and compassion preached by Guru Nanak Sahib and his descendants, permeated the land of the five rivers, the Punjab, and then spread across the vast subcontinent of India. Punjab became the sentinal of India, the defender of her people and the teacher of the universal values of tolerance and brotherhood irrespective of the religious faith, social caste or economic category. The Sikh faith encompassed in its loving embrace all religions. Its strength lay in its unself-conscious welcome to all faiths and its rejection of exclusiveness. Its influence in Punjab was not merely on the Sikhs, but all communities living in peaceful harmony. Guru Nanak Sahib and the later Gurus have been revered not only by the Sikhs but by non-Sikhs as well, for the message they preached has an universal appeal.

The problems we face today in Punjab and in Kashmir are in a sense a replay of history. Whenever religious discord, social divisiveness and intolerance have taken hold in our country, our vulnerability to threats across our borders has increased. We need to look deep within ourselves and ask whether in this headlong pursuit of our narrow religious, regional and ethnic separateness, we are not putting our collective destiny into jeopardy. Both Punjab and Kashmir are heirs to a great tradition of communal harmony and religious tolerance. Now is the time for the people of these States to reaffirm and reassert their traditional values, values for which the entire country admires and respects them.

The threat we face from across the border is not merely a military threat. It is an attack on the very basis that the Indian state has been founded—a basis that draws upon this nation's heritage of universal brotherhood, tolerance and humanism. These values have found political expression in the Indian Constitution which reaffirmed secularism, respect for all faiths, human rights and equality before law. In the building of the secular State and its consolidation, Punjab has played a seminal role while Kashmir has been its most visible symbol. The contributions that the people of Punjab and Kashmir have made to the struggle for India's independence, to the defence of its territorial integrity and as fortress of India's secularism prove beyond any doubt that it is they who have shaped the mainstream of India's evolution into a multi-ethnic, multi-religious parliamentary democracy.

I have said that the Indian Constitution reflects our heritage of the values of universal brotherhood, compassion and tolerance. Secularism is the political expression of tolerance. Compassion is reflected in constitutional obligations to alleviate poverty, ensure equality of opportunity for all and observe human rights. The constitution recognises the reality of our diversities, yet reaffirms our membership of a common family bound together not by the coercive powers of the State, but a shared commitment to precisely the values preached by sages like Guru Nanak Sahib. There is a unity beyond our separate identities, be they religious, linguistic or regional. Deep down we all share the conviction that India in lovingly encompassing all its diverse children, in teaching them to live together in harmony and mutual respect, has enabled them to create a unique civilization, enriched by the different strands of culture constantly interacting with and assimilating each other. The essence of Guru Nanak Sahib's teachings as also of Gandhiji's philosophy was to espouse an accommodative human spirit. This is the spirit which the new Government seeks to infuse in all its policies. We seek to go back to the historical mainstream, the mainstream of which Guru Nanak Sahib's philosophy is an integral part in order to address the challenges the country faces today.

This is also true of our approach to our foreign policy. When we speak of our commitment to nonalignment, our espousal of general and complete disarmament, our support for a Palestinian homeland and rejection of apartheid in South Africa, we give the expression to our cherished and age-old values of universal brotherhood, non-violence and the enduring vision of a world no longer riven by violence and conflicts arising from religious, sectarian, ethnic or intra-nation discords. When the Government underlines its commitment to seeking good neighbourly relations with all our neighbours, including Pakistan, it is with the deep conviction that the values of secularism, tolerance and brotherhood within India itself would lack credibility unless they are extended to our neighbourhood as well.

The world is moving towards a new and hopeful future. The cold war has ended, the divisions between East and West are dissolving and all over the globe nations are coming together in regional groupings that transcends national boundaries. Technological change has brought in its wake the phenomenon of global interdependence. To survive and to prosper and to meet the challenges of the new age, nations must learn to live and work together in concept. As a multi-ethnic, multi-religious and culturally diverse entity, encompassing a vast land area and population, India today offers a vision of the world of tomorrow. This is India's contribution to the emerging global order. And that is why it is so important that we succeed in our national endeavour to create a flourishing and prosperous India, which is home to virtually every race, every religion the world has ever known. That is why it is important for India to fashion a foreign policy which is based on a spirit of cooperation, mutual respect and understanding and friendship with all concerned. □

Women and Social Justice

A one-day seminar on "Women and Social Justice" was recently organised at S.D. College, Muzaffarnagar under the aegis of Women's Studies and Development cell of the college which is financed by the University Grants Commission (UGC).

Explaining the purpose and objective of the seminar, Dr. L.N. Mittal, Principal, S.D. College said that 1990 has been declared by the SAARC as the year of the girl child. As per the census of 1981, the sex ratio in India is 933 women/1000 men. By 2080, there will be 480 million females against 500 million males. Women's unpaid work in the household gets no recognition. Whether urban or rural women folk, all of them have to spend about 8 to 10 hours for collecting fuel, fodder, water or preparing food or helping in the farmis or in animal herds. Only 25 per cent of women are literate in India. In at least 57 districts in the country, female literacy is below 10 per cent. For every 100 boys who enrol, only 65 girls are able to do so. The drop out rate of school girls is also very high. Uncontrolled fertility continues to pose a health hazard to women. Dr. Mittal also referred to several legal hurdles in providing Social Justice to Women.

Km. Renu Kamboj convenor of the workshop in her paper 'The plight of educated women in Indian Society—A case study of meritorious girl students' evaluated the role of society in women's career building and the reasons of non achievements of the ambitions. The paper also suggested ways and means to raise the women's status in Modern Indian Society. The case study highlighted the plight of meritorious girl students vis-a-vis their career. Sri U.B. Singh, of the Department of Geography in his paper analysed the prevalent atrocities on women in India. Rape in custody, bride burning, dowry deaths, prostitution, molestation, kidnapping, were same of the areas he had touched. Dr. Madhubala Gupta of the Department of History gave a synoptic view of widows' rights to inheritance in ancient India.

Dr. D.S. Rawat of the Department of Geography in his paper on 'Indian Women and Society' raised several issues regarding value system towards Indian women. Shri Ramesh Kumar of the Department of the Commerce dealt with social justice on a comprehensive plane including legal, political, social and economic aspects. Dr. S.N. Chauhan of the Department of Geography projected a profile of educational and social status of women in India in terms of graphs and statistics while Shri S.C. Kulshreshtha of the same department presented a profile of the unequal Indian Society based on gender discrimination. Shri Anil Gupta, Department of Economics said that women themselves were against women. Even the women who were in the system do not necessarily see themselves as conduits for other women or their cause.

The seminar participants discussed issues like working women, Government plans and schemes for women, sex, crime and violence and violence against women, sati, widowhood and dowry and the status of the girl child in India.

Bridging the Communication Gap

"The gap between scientific research and user communication is the main reason for the lack of adoption of innovative developmental ideas in India. Unless this inability to communicate the findings of research to the beneficiary in agriculture, health, nutrition, etc., is bridged, social change cannot take place" said Prof. S. Bashiruddin, Co-ordinator of Special Assistance Programme, Dept. of Communication & Journalism, Osmania University, while addressing the participants of the 10-day Workshop on Science Communication sponsored by the Dept. of Science & Technology and Prakasam Institute of Developmental Studies at Hyderabad recently.

He pleaded for the need to have a new information cadre of link personnel between the research specialists/institutions and the user/beneficiary through whom research findings could be transmitted in applicable form by clients as also disseminated through mass media. He added that it would also be necessary to orient scientists to understand the mental frame of reference of the weaker sections especially in rural areas who were in greater need of the benefits of scientific research. When media personnel also gain an orientation to the perception of scientists in lab environment and the specialists understand the demands of lucidity, brevity and the other common denominators of public taste in mass media, Indian society would derive optimum benefit from research whether conducted in Universities or by other Institutions, he said.

Prof. Bashiruddin said that the problem of science communication in India was doubly compounded in view of basic research being done in English and the usual specialist jargon that interfered with even the dissemination of knowledge to the commonman whether in English or the regional languages. pleaded for the Planning Commission and other national bodies like ICAR, CSIR, ICMR, NCST, etc., to give serious consideration in their 8th plan to evolve a cadre of science technology communicators as a thrust area of implementation.

APOU Offers New PG Courses

Andhra Pradesh Open University (APOU) proposes to introduce new courses at post-graduate level in political science, public administration (both in Telugu media) and M.Sc. in Mathematics, besides Masterate in Business Finance (MBF) from this academic year. This was revealed by the Vice-Chancellor, Prof. R.V.R. Chandrasekhar Rao in Hyderabad recently. He said, some other courses like History, English, Economics and Telugu at post-graduate level would also be introduced from the next academic year. The post-graduate diploma in language journalism was another course the university proposed to introduce from next acadamic year.

The Vice-Chancellor said that efforts would be made to promote distance education as the response over the years was not only encouraging, but 'overwhelming'. To support his argument, Prof. Chandrasekhar Rao said as against 8,380 people registered for graduate courses in 1983, this year nearly 44,000 candidates have appeared for the eligibility test. Of which 24,009 candidates got through the examination.

Policy Review Committee Meets

The Committee set up to review the National Education Policy, 1986 at its first meeting held in New Delhi recently set up six groups. The groups will review the National Policy on Education (NPE) and make suggestions for changes in the Policy and for implementation of the revised policy within a time frame. These groups relate to access, equity and universal education, education and right to work, quality and standard, national unity, resource management and rural education.

The group concerning the access equity and universal education will deal with, among other things, elementary education, non-formal education, adult education and education of the Scheduled Castes, Scheduled Tribes, the minorities, women and the handicapped.

The group will also study regional imbalances, if any, in education. The task of the group on education and right to work will primarily be to study vocationalization and skilled training. The group will also interact with industry.

Value education and character building will be the subject of the group concerning national unity This group would also concern itself with the role of languages in education.

INSA Medal for Young Scientists

The Council of the Indian National Science Academy (INSA) has selected 14 scientists for the award of the INSA Medal for Young Scientists for 1990. The recipients are Dr S. Asokan, Indian Institute of Science, Bangalore, Dr S.K. Chakarabarti, Tata Institute of Fundamental Research, Bombay, Dr Vyjayanthi Chari, Tata Institute of Fundamental Research, Bombay Dr P.K. Chattaraj, IIT, Kharagpur, Dr P.P. Das, IIT, Kharagpur, Mr C.S. Dattananda, Centre for Cellular and Molecular Biology, Hyderabad, Dr Anil Grover, University of Delhi, Dr Rajani R. Joshi, IIT, Bombay, Dr R.K. Kaul, Central Arid Zone Research Institute, Jodhpur, Dr N.K. Mukhopadhyay, Indian Institute of Science, Bangalore, Dr Soniya Nityanand, SGPGIMS, Lucknow, Dr Anindya Sarkar, Physical Research Laboratory, Ahmedabad, Dr S.M. Singh, Banaras Hindu University, Varanasi, and Dr T.N. Venkataramana, Tata Institute of Fundamental Research, Bombay.

The awardees will receive Rs. 10,000 and a medal. They may also be considered for a research grant not exceeding Rs 30,000 a year for a period of three years for continuing research in the fields of their specialisation.

Others who have also been selected for awards include Dr. Biman Bagchi, Assistant Professor, Solid State and Structural Chemistry, Indian Institute of Science, Bangalore, for the Anil Kumar Bose Memorial Award for 1990 for the best research paper and Prof. Goverdhan Mehta, School of Chemistry, University of Hyderabad, for the Golden Jubilee Commemoration Medal, 1989, for his contributions in synthetic organic chemistry.

Monograph on Exercise, Food and Weight Control

Prof. H.K. Manmohan Singh, Vice-Chancellor of Punjabi University, released a simple but most practical monograph entitled, 'Practical Guidelines on Exercise, Food and Weight' authored by Drs. D.K. Kansal (Head of the Department), S.K. Verma (Reader) and M.S. Sohal (Reader) of the newly created Department of Sports Sciences on the World Health Day, 1990. Prof. Singh in his message said that the monograph released will be of great value both to experts in the field and the general public. He further added that balanced growth must emphasize physical fitness culture, not only among children but also among adults to ensure all round development of a community. Small efforts at physical fitness activity, like walking, jogging, Yoga, swimming, participation in sports, can go a long way in promoting longevity and creative living.

The contents of the monograph include health rule, tables of daily energy requirements, four food groups, desired weight for height, exercise and weight control, planning of nutritional composition of diet, calorie consumption of common physical activities etc. which deal with very important practical aspects of everyday life and summarise easy 'Do it yourself techniques' for observing ones daily energy intake and energy output so as to compute how much a person is adding to his weight or how much a person is loosing weight through his slimming efforts.

Competitive Spirit in Students

The Students Counselling Cell of Tamil Nadu Agricultural University (TNAU) organised a special talk by Thiru. V. Iraianbu, Assistant Collector, Tanjore on "IAS—An Approach" at which about 200 students of all the constituent colleges of TNAU participated. The approach methodology and subject options were meticulously explained by him. Stressing the need for inculcating a healthy competitive spirit in graduate scholars, Mr. Iraianbu called upon the participants to make full use of their latent potentials in productive ways.

Lauding TNAU for its wide coverage of subject areas in agriculture and related fields, Mr. Iraianbu said the education and extension training offered here would be of much use in facing the competitive examinations successfully.

A discussion forum was also arranged on the occasion in which the students clarified the doubts on various competitive examinations.

Physical Fitness Programme

A unique physical fitness programme is proposed to be implemented in the colleges of the Mahatama Gandhi University, Kottayam. This when accomplished would serve as a model. As an experiment this programme will be introduced at the Ist Pre-degree level initially.

Students will be tested periodically in any of the five disciplines of sports and the average fitness level of the student will be entered in the marklist though this will not be counted for a pass.

Along with this particulars like blood group, height etc. will also be entered in the marklist. This will be a "complete record of the student of the time he spent in the college", remarked Dr. U.R. Anantha Murthy, Vice-Chancellor in a meeting held to discuss the project.

News from Agril. Varsities

Millet Scientists Meet

The Millet Sientists Meet was held at the Tamil Nadu Agriculture University (TNAU), Coimbatore on 21st and 22nd May, 1990 to critically identify the new frontiers of research in Millets. Speaking on the occasion, Dr. S. Jayaraj, Vice-Chancellor, TNAU, emphasised the need based research on alternate uses of the millets viz. quality poultry feed, biscuit making, starch production and corn oil. He called upon the plant breeders to evolve in addition to high yielding varieties resistant to pests and diseases, the suitable genotypes for intercropping situation. Great concern was expressed to promote quality fodder/crop residue processing, utilisation and conservation.

As a result of two days meet the following research strategies were planned for implementation.

In the newly identified high yielding cultures and varieties in sorghum, pearlmillet and other small millets, the large scale seed multiplication prior to their release to the farmers would be taken up. Various cultures were approved for 'Adaptive Research Trials" in farmers holdings to assess their yield potential and suitability for different agro-climatic zones. Another set of cultures was identified for 'Multilocation Testing' in the different research situations. The meet decided to critically identify genotypes to suit the intercropping situation.

Pre-monsoon sowing in black soils and application of "Integrated-Moisture and Nutrient Management Technology" for the millet crops were emphasised. Low cost technologies like increased use of azospirillum, composted coirpith and enriched farm yard manure were recommended for enhancing productivity and saving the use of inorganic fertilizers.

The Plant Protection Scientists of TNAU identified the resistant sources for important pests and diseases (downy mildew, blast, charcoal rot, stemborer, shootfly and midge). Based on this, crossing programmes would be initiated to transfer the resistance to high yielding varieties.

Future thrust areas in millets viz., growth development models, combined effect of azsospirillum and phospho bacteria on rainfed millets and identifying varieties for areas affected by tannery and sugar mill effluents would be taken up by TNAU.

News from UGC

INSAT-1B Programme of UGC

Between 8th June, to 15th June, 1990 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 Noon to 1 p.m. The programme is available on the TV Network throughout the country.

1st Transmission

6.00 a.m. to 7.00 a.m.

8.6.90

"Chinese Postman Problem"

"Defence Mechanism—III : Fantasy"

"Sand Dunes—The Moving Mountains of Desert"

9.6.90

"Scenic America : Four Faces of a Mountain"

"Indian Stick Fighting—II"

"Block Art"

10.6.90

No Telecast

11.6.90

"Test Chart"

"The Life of William Shakespeare"

"Oceans—The Source of Life"

12.6.90

"Home Made Cosmetics—II"

"Values in Education—I : The Ideals"

"Hour USA : OMNI—The New Frontier—Voice Activated Machine, Chinese Medicine"

13.6.90

"Cooling With Gunny Bags"

"Biography—An Art"

"Plants in Our Neighbourhood—VII"

14.6.90

"Computer Literacy—III : Concept of Package"

"The Story of Words—II"

15.6.90

"Models"

"Defence Mechanism—VI"

"Harnessing the Monsoon"

2nd Transmission

12.00 noon to 1.00 p.m

8.6.90

"Examination Stress"

"Forests in Peril—III"

9.6.90

"What is a Spastic—II"

"An Obligation for safety"

"Origin of Music"

10.6.90

No Telecast

11.6.90

"Quasi Crystals—Beyond Conventional Symmetry"

"Business Finance"

"Fresh Water Fish Farming—Induced Breeding"

12.6.90

"Chemical Kinetics—IV"

"Change for the Better"

"Worldnet Medicom—86—I"

13.6.90

"Membrane Technology Applications"

"Ambassadors of Culture"

"Silk for the Desert—II"

14.6.90

"Electrical Circuits—I"

"Creations of Clay"

"Language 3 To 5"

15.6.90

"Apollo—14—Mission to Fr Mau Ro"

"Motivation"

"Let Us Save Ourselves : Pollution—I"

UGC Assistance for Bio-Science Researches

On the recommendations made by an expert Committee the University Grants Commission (UGC) has approved 318 major research projects in Bio-Sciences at a financial outlay of Rs. 590.47 lakhs for a period of three years. The projects are in the disciplines of Botany (120), Zoology (113), Genetics (7), and Biochemistry and others (78).

The UGC provides financial assistance to the teachers working in the universities and colleges for undertaking well defined, time bound major research projects in different disciplines. The basic objective of such assistance is to promote a culture of research in the university system and enable the teachers to keep abreast of developments in their specialised subject areas.

INDIAN INSTITUTE OF ADVANCED STUDY

RASHTRAPATI NIVAS, SHIMLA-171 005

Advertisement No. 2/90

1. Applications on prescribed form are invited for the award of Fellowships for the year 1990-91 from scholars holding Ph.D. degree and with experience of independent research work at advanced level in any of the following areas :

   HUMANITIES
   1. Art and Aesthetics;
   2. Comparative Study of Literature; and
   3. Comparative study of Religion.

   SOCIAL SCIENCES
   1. Development Studies;
   2. Comparative Study of Political Institutions; and
   3. Socio-Economic and Socio-Cultural Formations in Historical Perspective.

   NATURAL AND LIFE SCIENCES
   1. State Policies on Science and Technology;
   2. Science, Technology and Development; and
   3. Methodologies and Techniques.
2. A few Fellowships may be awarded for projects of exceptional interest even outside these areas. One Fellowship can be awarded for 'Critical Evaluation of the Societies Registration Act of 1860 in a Historical Perspective'.
3. About two-thirds of the Fellowships will be earmarked for those who are already working in universities, research institutions or other responsible positions. Preference will be given to those who have already done considerable work on their projects and wish to avail of the facilities at the IIAS to complete their work.
4. The selection of Fellows will not be restricted to those who apply. The Institute has the discretion to select Fellows in other ways as well.
5. The emoluments drawn by scholars in regular employment will be protected, and in the case of other scholars, Rs. 3000/- (likely to be revised) will be paid as Fellowship Grant.
6. The term of Fellowship can be from three months to two years and it can be extended after two years only in exceptional circumstances upto a maximum of one year.
7. All Fellows are provided free hard-furnished accommodation on the Institute's campus.
8. The prescribed application form may be obtained from the Secretary (Administration & Finance) of the Institute by sending a self-addressed envelope (25 cm x 10 cm) or personally from the Institute by 20th June, 1990. The completed application forms should reach the Institute at the latest by **15th July, 1990.** In case of candidates living abroad, applications will be accepted upto **31st July, 1990.** Those in service should apply through proper channel.

davp 903 (1) 90

Book Review

A WELCOME GUIDE

P.L. Kirkere*

Kurup, M.R. Towards Entrepreneurship. Bombay, Kelkar Education Trust, 1990. vi+120p. Rs. 40.00

In an age when getting an employment is almost impossible for the average educated youth and education system is failing to provide guidance or to inculcate necessary skills specially among young graduates from lower middle class or from backward classes, any efforts by colleges to conduct entrepreneurship development courses and programmes for prospective entrepreneurs are to be welcomed. "Towards Entrepreneurship" definitely fills the gap by providing necessary information to a young aspirant who just does not know how to go about setting up and developing a successful establishment.

As the author puts it "the aim of the book is to remove the pessimism and apprehension amongst youngsters and their parents about entrepreneurship". The concept of entrepreneurship is taken as relating to "a set of qualities which stay behind the efforts of a person. In the backdrop, these qualities provide the required personality fuel and, on the forefront, we find endless toil and a successful enterprise."

An entrepreneur has to perform three functions "entrepreneurial, managerial, and administrative". Further the qualities of leadership, dynamism, innovation, risk bearing, will to do, a sound ethics and even capabilities for group entrepreneurship are crucial in a new beginner. With this background as covered in the first chapter, the other aspects related to successful entrepreneurship are covered in the 12 chapters that follow.

In Chapter 2, for an entrepreneur as a manager, the underlying important concepts such as marketing, personnel, financial and cost control, accounting and budgeting control are explained. All the necessary technicalities are covered exhaustively, though briefly. However this makes the reading a bit difficult for the layman. Issues of cost minimization are emphasized and how to achieve this in a highly competitive market is neatly explained. Scope and utility of computerisation is also dealt with.

The role of government in the ventures is explained in Chapter 3. How to achieve registration, how to choose a location, what are the government and export incentives available and how to make use of them is well explained. The case study of Aurangabad also helps well in the purpose.

In Chapter 4, issues of product selection are discussed. Taking decision about a product idea is most crucial in the long run. How to achieve this is well explained. Important issues of product market relationship and product evaluation are also highlighted. The technique of SWOT (Strength, weakness, opportunities and threats) is also introduced to build confidence in the beginner entrepreneur.

Chapters 5 and 6 are devoted to issues of generating finances. Strategies for developing both fixed capital and working capital are explained and information on various available schemes is provided. Dealing with technicalities in a nutshell is again an asset to the author that deserves our admiration.

How to decide about pricing strategies and design efficiently the marketing strategies for selling the products are explained in the Chapters 7 and 8. "Marketing it may be said, makes or breaks a small enterprise". Again technical issues are all exhaustively covered though reading appears a bit difficult for the layman.

The role of institutions like Maharashtra State Small Industries Development Corporation is introduced as a useful guide to the beginners. The case of export market is also neatly covered while explaining how to get access to such institutions.

Issues of book keeping/accounting, taxation and unit sickness etc., are well explained in Chapters 9 to 11 providing very important technical information to the beginner. Specially, the chapter on sickness should make the beginner cautious enough before he starts his own venture.

The case of Vinayak turning to entrepreneurship at the age of 40, as beautifully analysed in Chapter 12, is based on a true story and provides a good lesson in terms of both incentive and necessary caution to the new entrepreneur. It successfully illustrates how difficult hurdles can be overcome with sheer patience and presence of mind and the ingenious decision making qualities so very necessary for a successful entrepreneur. In the end the book sums up a few project reports in Chapter 13. The reports demonstrate the technicalities required to be grasped in carrying out entrepreneurship programme.

In sum, it must be admitted that the book is successful in presenting the necessary information as required by the beginner. A layman would however be better served if an additional introduction and self instructional exercise in the form a separate chapter were provided at the end. □

Research Associate (UGC), Association of Indian Universities, New Delhi-110002.

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The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A List of Research Scholars Registered for Doctoral Degrees of Indian Universities

PHYSICAL SCIENCES

Physics

1. Bargoti, Rashmi. *Plasma physics : Laser plasma interaction.* Delhi. Dr. M.P. Srivastava, Department of Physics, University of Delhi, Delhi.

2. Bhan, Rajinder Kumar. *Passivation and electrical properties of gate oxides for CCD's/MCS technology.* Delhi. Dr. P.C. Mathur, Department of Physics, University of Delhi, Delhi and Dr. S.K. Lomesh, SSPL, Lucknow Road, Delhi.

3. Dhingra, Ritu. *Polytypism in materials.* Delhi. Prof. G.C. Trigunayat, Department of Physics, University of Delhi, Delhi.

4. Jain, Alka. *Polytypism in materials.* Delhi. Prof. G.C. Trigunayat, Department of Physics, University of Delhi, Delhi.

5. Mitthan Lal. *Thin film superconductors.* Delhi. Dr. Raj Rup, Department of Physics, University of Delhi, Delhi and Dr. P.K. Aswani Kumar, National Physical Laboratory, Sir K.S. Krishnan Road, New Delhi.

Engineering & Technology

1. Mishra, Anil Kumar. *Behaviour of beam column joint.* BHU. Dr. Virendra Kumar, Department of Civil Engineering, Institute of Technology, Banaras Hindu University, Varanasi.

BIOLOGICAL SCIENCES

Biology

1. George, Johnson. *Ecophysiological studies on the venomous and poisonous organisms along the coast of Kerala.* Kerala. Dr. H. Suryanarayanan, Reader, Department of Aquatic Biology and Fisheries, University of Kerala, Trivandrum.

2. Kingston, S. David. *Niche segregation and habitat usage of fish assemblages in lower reaches of Kallarvamanapuram river basin.* Kerala. Dr. H. Suryanarayanan, Reader, Department of Aquatic Biology and Fisheries, University of Kerala, Trivandrum.

3. Mathen, Bindoo. *Studies on some culture aspects of air breathing fishes belonging to family channidae.* Kerala. Dr. C.M. Aravindan, Reader, Department of Aquatic Biology and Fisheries, University of Kerala, Trivandrum.

Biochemistry

1. Kamala, Turaga. *Studies on starch degrading enzymes.* Kerala. Dr. C. Arumughan, Scientist, Regional Research Laboratory, Trivandrum.

2. Leena, K.B. *Biochemical and structural studies in animals fed on cassava and modified diets and the effect of drug salacia prenoides.* Kerala. Dr. K.T. Shenoy, Asstt. Prof., Department of Gastroenterology, Medical College, Trivandrum and Dr. R. Bhaskaran Nair, Research Officer, Regional Research Institute, Poojappura, Trivandrum.

Botany

1. Mohandas, A. *A comparative study of the mangrove ecosystem in Kumarakom with that of Quilon to assess the effects of manmade changes.* Kerala. Dr. N. Ramanujan, Principal Scientific Officer, State Committee on Science, Technology and Environment, General Hospital Road, Tri-

vandrum and Dr. P. Sreedevi, Lecturer, Department of Botany, M.G. College, Trivandrum.

2. Thankamma, L. *Pressure injection technology for the rubber tree Hevea brasiliensis : Applicability in disease management and preservation of wood.* Kerala. Dr. O. Shanta, Rubber Research Institute of India, Kottayam.

Zoology

1. Gupta, Mahesh Prasad. *Studies on cotton pest management in Harda, Madhya Pradesh.* HS Gour. Dr. D.P. Gupta, Reader, Department of Zoology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Jeyachandra, I *Studies on leeches of Kerala.* Kerala. Dr. S. Sankaranarayana Iyer, Prof., Department of Zoology, University College, Trivandrum.

3. Kesavan, K P. *Studies on chironomids of Kerala (South India).* Kerala. Dr. S. Sankaranarayana Iyer, Prof., Department of Zoology, University College, Trivandrum.

4. Neelam Rani. *Haematological and histopathological studies on gamma irradiated chicks, Gallus domesticus.* HP. Dr. (Mrs.) Neena Malhotra, Department of Bio-sciences, Himachal Pradesh University, Shimla.

5. Rekha, Kiran. *Histological, histochemical and biochemical studies on minced muscle auto grafts on chick gastrocnemius.* HP. Dr. R K. Malhotra, Department of Biosciences, Himachal Pradesh University, Shimla.

Medical Sciences

1. Dash, Deoa Prasad. *Hepatoprotective effect of some indigenous drugs.* BHU. Prof. D. Ojha, Department of Kayachikitsa, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

2. Hiremath, Shobha G. *Study on the methods of enhancement of efficacy of Asavarishtas with special reference to 'Kutajarishta'.* BHU. Dr. Damodar Joshi, Department of Rasa Shastra, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

3. Pathak, Vinod. *An experimental and clinical study of ayurvedic compound (Indravati) with special reference to its anti-diabetic effect.* BHU. Dr. S.K. Dixit, Department of Rasa Shastra, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities

PHYSICAL SCIENCES

Mathematics

1. Ananda Rao, Godavarthi. *Dispersion in rotating circular pipes.* Andhra.

2. Baisya, Mantoshchandra. *Stochastic modelling of some non-equilibrium fluctuation phenomena.* Calcutta.

3. Chourasia, Geeta. *Some problems on fixed point theorem.* HS Gour. Prof. P.L. Sharma, Head, Department of Mathematics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

4. Jain, Rajendra Kumar. *Some results in the fixed point theory.* HS Gour. Dr. R K. Jain, Reader, Department of Mathematics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

5. Mohanty, Peari Charan. *On Tauberian and inclusion theorems for absolute and strong summability methods.* Sambalpur. Dr. I.L. Sukla, Reader, Post Graduate Department of Mathematics, Sambalpur University, Burla.

6. Saha, Supriti. *Some problems of topology in fuzzy setting.* Calcutta.

7. Sharma, Laipubam Gopal. *Mathematical analysis of fluid film lubrication in some machine elements.* Manipur. Dr. R.S. Gupta, Assoc. Prof., Department of Mathematics, Manipur University, Imphal.

8. Sritharan, V. *Multi-phase approach to population models and applications.* IIT, Madras. Dr. R. Subramanian, Prof., Department of Mathematics, Indian Institute of Technology, Madras.

Statistics

1. Manoharan, M. *Analysis of some stochastic models in inventories and queues.* CUST. Dr. A. Krishnamoorthy, Prof. and Head, Department of Mathematics and Statistics, Cochin University of Science and Technology, Cochin.

Computer Science

1. Palchaudhuri, Pabitra. *A study on the design of self diagnosable systems.* Calcutta.

Physics

1. Amarjit Singh. *Growth and attenuation of beta ray Bremsstrahlung in some metallic targets.* Punjabi. Prof. Mohinder Singh and Dr. M.S. Powar, Department of Physics, Punjabi University, Patiala.

2. Bhatia, Usha. *Study of some processes involving Higgs bosons inspired phenomenological model.* Rajasthan. Prof. N.K. Sharma, Director, CDPE, University of Rajasthan, Jaipur.

3. Paramjit Singh. *Study of electrical conductivity and dielectric relaxation of some transition metal oxide glasses.* Punjabi. Dr. Buta Singh, Department of Physics, Punjabi University, Patiala.

4. Patel, Basumati H. *Studies on compound semiconductor (AG InTe*$_2$*) thin films.* Patel. Dr. S.M. Patel, Prof. and Head, Department of Electronics, Sardar Patel University, Vallabh Vidyanagar.

5. Patra. Manas Kumar. *Cohomology and deformation (Contraction) of Lie superalgebras.* Delhi.

6. Rajesh Kumar. *Electrical and optical properties of amorphous Ge-Sb-Se and Ge-Sb-Se-Bi systems.* Delhi.

7. Ramesh, K.P. *Widelive NMR instrumentation and investigation in certain ammonium and alkyl ammonium double salts.* Bangalore Prof. N. Devaraj, Department of Physics, Jnana Bharathi Campus, Bangalore University, Bangalore and Prof. J. Ramakrishna, Department of Physics, Indian Institute of Science, Bangalore.

8. Rangarajan, K.E. *The effect of partial redistribution on spectral line formation.* Punjabi. Prof. H.S. Gurm, Department of Astronomy and Space Sciences, Punjabi University, Patiala and Dr. A. Peraiah, Indian Institute of Astrophysics, Bangalore.

9. Sardool Singh. *Investigation of some nuclear decay parameters in some radioisotopes.* Punjabi. Dr. H.S. Sahota, Department of Physics, Punjabi University, Patiala.

10. Sathya Sainath Prasad, P. *Preparation, characterization and transport studies on some amorphous solid electrolytes for solid state batteries.* IIT, Madras. Dr. S. Radhakrishna, Prof., Department of Physics, Indian Institute of Technology, Madras.

11. Seshadri, A.T. *Ultrasonic and dielectric studies of some organic liquids.* IIT, Madras. Dr. A.V. Narasimhan, Asst. Prof., and Dr. B. Subramaniam, Lecturer, Department of Physics, Indian Institute of Technology, Madras.

12. Thakur, Ganesh. *Spectroscopic and phase transition studies of some hexafluoro silicates and titanates of divalent metals.* NEHU. Dr. A.L. Verma, Department of Physics, North Eastern Hill University, Shillong.

13. Vasantha Kumar, C.V.R. *Study of RF sputtered oxide films : Tin doped indium oxide (ITO) and barium titanate ($BaTiO_3$).* Delhi.

Chemistry

1. Amlathe, Sulbha. *Studies on the analytical chemistry of some organic pollutants.* Ravishankar. Dr. V.K. Gupta, Prof., Department of Chemistry, Ravishankar University, Raipur.

2. Basu, Sandwip Kumar. *Physico-chemical and kinetic studies on enzymes.* Calcutta.

3. Chandrasekhar, B. *Synthesis and reactions of new types of fused ring heterocycles containing oxygen, nitrogen and sulphur atoms.* IIT, Madras. Dr. D.V. Ramana, Asstt. Prof., and Dr. S.R. Ramadas, Prof., Department of Chemistry, Indian Institute of Technology, Madras.

4. Chaubey, Anand Kumar. *Structural and synthetic studies of some naturally occurring polyphenolics.* Delhi.

5. Debnath, Pranabendra. *Studies on sulphonamides as chelating and antibacterial agents.* Calcutta.

6. Dhaneshwar, Sunil Rajaram. *Synthesis and anthelmintic activity of some Mannich bases of benzimidazoles.* Devi Ahilya. Dr. S.C. Chaturvedi, Head, State College of Pharmacy, Indore.

7. Geena, N. *Analytical studies on drugs—its hydrolysis products having phenolic aromatic amino and indole moities.* Osmania.

8. Golwelkar, Abha. *Studies of analytical chemistry of some toxic substances.* Ravishankar. Dr. R.K. Mishra Prof., Department of Chemistry, Ravishankar University, Raipur.

9. Hanumantha Reddy, G. *Studies on organo sulphur compounds : Synthesis and spectral studies of some isomeric bis (Arylthio and arylsulphonyl)—bis (Phenyl Ethylenes).* Krishnadevaraya. Dr. Syed Ghouse Peeran, Reader, Department of Chemistry, Sri Krishnadevaraya University, Anantapur.

10. Jayakumar, R. *Confirmational studies of acyclic peptides by NMR and single crystal x-ray diffraction techniques.* IIT, Madras. Dr. P.T. Manoharan, Prof., Department of Chemistry, Indian Institute of Technology, Madras.

11. Jog, Shilpa. *Biochemical studies of effects of some anticancer drugs on developing chick embryo.* Devi Ahilya. Dr. P.T. Malse. Govt. Science College, Itarsi.

12. Maheshwari, Alka. *Kinetic and synthetic studies on cobalt (III) nickel (II) and copper (II) macracyclic complexes.* Roorkee.

13. Maheshwari, Nitin. *Contributions to the chemistry of myricanone end myricanol and stilbenoids.* Delhi.

14. Mirza, Urooj Ali. *Study of unimolecular and bimolecular reactions of gaseous ions.* Osmania.

15. Mishra, Pramila Kumari. *Hydrolysis of Schiff's bases in micellar system.* Sambalpur. Prof. G.B. Behera, Post Graduate Department of Chemistry, Sambalpur University, Burla.

16. Mohammad Alauddin. *Synthesis of some pyrimidine and 3-thiosubstituted coumarin derivatives as potential therapeutics.* Delhi.

17. Mohapatra, Sarat Kumar. *Studies on the electrodeposition of aluminium from organic bath.* Sambalpur. Prof. K.C. Satpathy, Post Graduate Department of Chemistry, Sambalpur University, Burla.

18. Mukhopadhyay, Ajay Kumar. *Synthetic studies in the azole series.* Calcutta.

19. Namboothiri, Krishnan. *Separation and determination of trace amounts of thallium and lead.* IIT, Madras. Dr. T.V. Ramakrishna, Prof., Department of Chemistry, Indian Institute of Technology, Madras.

20. Prabhakar, Subhash. *Physico-chemical studies of some alkali and alkaline earth cation systems.* Devi Ahilya. Dr. P.V. Khadikar, Department of Chemistry, Devi Ahilya Vishwavidyalaya, Indore.

21. Preeti Kaur. *Studies on the characterization of some inorganic pollutants.* Ravishankar. Dr. V.K. Gupta, Prof., Department of Chemistry, Ravishankar University, Raipur.

22. Premachandran, R.S. *Characterization of strong metal support interaction (SMSI) in rare earth oxide supported nickel catalysts.* IIT, Madras. Dr. B. Vishwanathan, Asst. Prof., Department of Chemistry, Indian Institute of Technology, Madras.

23. Priti. *Synthesis of bimetallic (Al (III), Ca (II)-u-Oxoiso-propoxide and its reactions with N OR O donor ligands.* Delhi.

24. Rakesh Kumar. *Synthetic studies in pyrimidines and mechanism of the debromination in heterocyclization.* Delhi.

25. Ramesh Babu, B. *Studies on the synthesis of polyhetero polycylic ring systems.* IIT, Madras. Dr. D.V. Ramana, Asst. Prof., and Dr. B.R. Ramadas, Prof. Department of Chemistry, Indian Institute of Technology, Madras.

26. Ramteke, Dilip Sitaramji. *Physico-chemical studies of pyrolysed product from industrial wastes.* Nagpur. Dr. G.H. Pandya, National Environmental Engineering Research Institute, Nagpur.

27. Sanjiv Kumar. *Interaction of basic polypeptides with nucleic acids and spectroscopic studies on tyrosyl peptides.* Delhi.

28. Satyanarayana, M.V. *Studies on fermentation of major hemicellulosic components, xylan xylose by anaerobic bacteria.* IIT, Madras. Dr. T.S. Chandra, Asst. Prof., Department of Chemistry, Indian Institute of Technology, Madras.

29. Saxena, Prabodh Narain. *Studies on coordination*

compounds of transition metal ions with aldimines. Rohilkhand. Dr. M.S. Bhatnagar, Bareilly College, Bareilly.

30. Sharma, Jyotsna. *Fundamental chemistry of alkali and alkaline earth cation with a special reference to their role in biology.* Devi Ahilya. Dr. A.V. Bajaj, Department of Chemistry, Devi Ahilya Vishwavidyalaya, Indore.

31. Shukla, Anima. *Studies on the organic reagents used in trace analysis.* Ravishankar. Dr. R.K. Mishra, Prof., Department of Chemistry, Ravishankar University, Raipur.

32. Soundar, S. *Studies on cellulose biodegradation.* IIT, Madras. Dr. T.S. Chandra, Asstt. Prof , Department of Chemistry, Indian Institute of Technology, Madras.

33. Sree Devi, C. *Studies in electrode processes involving some drugs and pharmaceuticals.* Venkateswara. Prof. S. Jayarama Reddy, Department of Chemistry, Sri Venkateswara University College of Engineering, Tirupati.

34. Srinivas, B. *Studies on the effect of gamma radiation on the physico-chemical properties of perovskite type catalysts and its role in catalysis.* IIT, Madras. Dr. V.R.S. Rao, Asst. Prof., Department of Chemistry, Indian Institute of Technology, Madras.

35. Subhashini, M. *Isotopic exchange between chloramine-B and radioactive chloride ion and application of radiochloramine-B for drug analysis.* IIT, Madras. Dr. V.R.S. Rao, Asst. Prof., Department of Chemistry, Indian Institute of Technology, Madras and Dr. M.S. Subramanian.

36. Syed, Abdul Samad. *Kinetics and mechanistic investigation of catalytic hydrogenation of organic compounds by ruthenium and rhodium complexes.* Bhavnagar. Prof. M.M. Taquikhan, Director, Central Salt and Marine Chemicals Research Institute, Bhavnagar.

Earth Sciences

1. Neelamani, S *Dynamic pressure on large vertical cylinders due to regular and random waves.* IIT, Madras. Dr. V. Sundar.

2. Ratnam, Bulusu Prabhakara. *Draught climatology in Karnataka with special reference to agriculture.* Andhra.

3. Singhai, S.K. *Geomorphology and soils of Haryana State, India.* Roorkee.

4 Subramani, K. Anantha. *Hydrogeological studies in parts of Bukaleru watershed, Nalgonda district, Andhra Pradesh, India.* Osmania.

Engineering & Technology

1. Appukuttan, K.K. *Pole assignment in multivariable system with output feedback.* IIT, Madras. Dr. K. Ramar.

2. Babu Rao, K. *Modelling and simulation of natural gas pipeline networks.* IIT, Madras. Dr. Ch. Durgaprasada Rao, Asst. Prof., Department of Chemical Engineering, Indian Institute of Technology, Madras.

3. Dhandapani, S. *Experimental and theoretical investigations on a single cylinder, 4-stroke lead burn S.I. Engine* IIT, Madras. Dr K V. Gopalakrishnan and Dr. B. Nagalingam, Asst. Prof., Department of Mechanical Engineering, Indian Institute of Technology, Madras.

4 Jain, C K. *Effect of process reriables on the quality of Al-4 5% Cu alloy casting produced by V-process.* Roorkee.

5. Jana, Susilranjan *Studies on the effect of heat treatment 500 700° C an physico-metallurgical and corrosion resistance behaviour of 25cr-12ni type stainless steel welds.* Calcutta.

6. Lakshmanan, M. *Evaluation of Hazard index in ferrous foundires : A new methodology.* IIT, Madras. Dr. O.V. Krishnaiah Chetty.

7. Pushpa Kumar, S. *Reactive power control in A.C. and integrated A C.—D.C. systems.* Roorkee.

8. Raghunatha Rao, B. *Studies on theccorrosion behaviour of some austenitic stainless steel weld metals.* IIT, Madras. Dr. K.J.L. Iyer, Asst. Prof., and Dr. K. Prasad Rao, Lecturer, Department of Metallurgical Engineering, Indian Institute of Technology, Madras.

9. Reddy, R S. *Studies on rotating heat pipe and application to cooling of electrical machines.* IIT, Madras. Dr. V.M , Krishna Sastri, Prof. Department of Mechanical Engineering, Indian Institute of Technology, Madras.

10. Sasi Kumaran, S. *An approach to geometric modelling of solid objects.* Roorkee.

11. Shukla, Hariharprasad Jayashankar. *Ftee convection in rectangular enclosures.* Baroda.

12. Soin. Ravindersingh Harbakshsingh. *Flow distribution in a solar collector array and balancing methods.* Baroda.

13. Srinivasa Rae, Madhwapathi. *Some studies on the 2D dispersion of high density pollutants through saturated porous media.* Andhra.

Institute for Social Sciences and Research

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Social Planning

Sponsored by

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Inauguration

Dr. T.C. Mohan, M.A., Ph.D.,
Vice-Chancellor, Annamalai University

Key-Note Address

Dr. P.R. Brahmananda, M.A., Ph.D.
National Fellow, ICSSR, New Delhi.

Valedictory Address

Prof. G. Chidambaram,
Member, State Planning Commission,
Madras.

All are cordially invited.

Dr. M. Abel,
(Former, Vice-Chancellor
of S.K. University)
Convenor.

Dr. S.C. Mathivaanan
Director

RABINDRA BHARATI UNIVERSITY

CALCUTTA

Admission Notice No. 90/3 **Dated : 14-5-1990**

The University invites applications for admission to the following courses :

1. (a) 2-year M.A. Course (Both Day & Evening Shift) in Bengali, English, History, Philosophy, Political Science, Sanskrit for the Session 1989-90 and Economics for the Session 1990-91 under the Faculty of Arts. Candidates with B.A. (Honours) in the respective subjects may apply.

   (b) 2-year M.A. Course in Vocal Music, Instrumental Music, Dance, Drama, Rabindra Sangeet for Day Shift only for the Session 1989-90. Candidates with Honours in other subjects may also be considered in the Faculty of Fine Arts, if they pass the aptitude test.

2. 2-year M.Phil Course (Evening) in Sanskrit and Bengali for the Session 1990-91. Number of seats limited. Minimum qualification for admission is M.A. with Honours in the subject concerned and preference will be given to College Teachers.

Prescribed Application Forms may be obtained on payment of Rs. 2/- in cash on production of the original marksheet of the qualifying examination from the University Office at (1) Emerald Bower Campus, 56A, B.T. Road, Calcutta-50 except on Saturdays and holidays (in the case of subjects of study under the Faculty of Arts) and (2) Jorasanko Campus, 6/4, Dwaraka Nath Tagore Lane, Calcutta-7, except on Saturdays and holidays (in the case of subjects of study under the Faculty of Fine Arts).

Application Forms will be issued and duly completed applications with necessary documents attached will be received in the University as specified below :

(i) For courses of study mentioned under 1(a) & 2	:	From 25-6-90 to 28-6-90 (12 noon to 1.30 p.m.) for the Day Shift and (3 p.m. to 4 p.m.) for the Evening Shift and From 2-7-90 to 11-7-90 (12 noon to 1.30 p.m.) for the Day Shift and (5 p.m. to 6 p.m.) for the Evening Shift.
(ii) For courses of study mentioned 1(b)	:	From 25-6-90 to 28-6-90 and 2-7-90 to 11-7-90 (12 noon to 1.30 p.m.)

N.B. 1. Submission of application for admission does not imply any right to admission, and selection for admission does not assure accommodation in University Hostels.

2(a) Lists of candidates selected for interview for Fine Arts and M.Phil Courses will be displayed with respective dates of interview on the University Notice Board (Admission Section) at the respective Campuses in the last week of July, 1990.

(b) List of candidates selected for admission to above Courses under the Arts Faculty will be displayed on the Departmental Notice Boards in the last week of July, 1990.

3. No individual communication will be sent by post or otherwise to the candidates selected for interview and/or admission to the above courses. Candidates will be required to collect informations regarding admission from the University Notice Boards only in the respective Campuses.

4. Candidates failing to appear in the interview for M.Phil and Fine Arts Courses or failing to get admitted personally or through bonafide representative(s) on or within the stipulated date(s) to be specified on the University Notice Boards will have no claim for interview or admission, as the case may be.

5. Candidates already admitted to a particular course of this or any other University or appearing in any University Examination or candidates who have appeared in any examination of this or any other University of which the results are yet to be published are not eligible to apply for admission to any of the above courses in the same calendar year.

6. Reservation for SC/ST candidates will be allowed as per Government specifications. Canvassing in any form and/or suppression of facts at any stage will lead to disqualification/cancellation of candidature or admission, if already allowed.

R.S. Mitra
REGISTRAR

Birla Institute of Technology And Science

PILANI (RAJASTHAN) 333031

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Applications are invited for faculty positions at various levels in the disciplines of: Chemical, Civil, Electrical & Electronics, Microelectronics, and Mechanical Engineering, Computer Science, Instrumentation, Pharmacy, Management: Biosciences, Chemistry, Economics, Mathematics, Physics, Science & Technology Development, Museum Studies, Engineering Technology, Information Systems, English and Humanities. Positions (full-time/part-time) are also available for the Institute's off-campus operations in Delhi, Calcutta, Madras, Bombay, Hyderabad, etc. Candidates must possess normally a Ph.D. In case of professional disciplines Master's or Bachelor's degree holders will also be considered.

A free booklet "Introducing BITS to Prospective Faculty" giving details can be obtained on request by sending a stamped (Rs. 6.20) self-addressed envelope (30 x 25 cm) marked FR/1/90.

This advertisement will be valid for one year from the date of issue.

PILANI
May, 1990

REGISTRAR

CLASSIFIED ADVERTISEMENTS

ANNAMALAI UNIVERSITY

ANNAMALAINAGAR

Notification No. 1/90 (C)

Applications are invited in the prescribed form for filling up of the following posts of Professors/Readers/Lecturers. Application forms can be had from the undersigned on payment of Rs. 10/- by cash/money order/postal order. Applications (with 5 additional copies) should reach the undersigned on or before 27.6.90.

S.No.	Name of the Post	Community	No. of Posts
1.	Professor of History	OC	ONE
2.	Professor of Education	OC	ONE
3.	Professor of Agricultural Chemistry	OC	ONE
4.	Professor of Agronomy	OC	ONE
5.	University Librarian and Professor of Library and Information Science	OC	ONE
6.	Professor and Director of Physical Education and Sports Sciences (Reader Scale)	OC	ONE
7.	Reader in Business Administration	BC	ONE
8.	Reader in Library Science	BC	ONE
9.	Reader in Bio-Chemistry	BC	ONE
10.	Lecturer in Business Administration	MBC/OC	TWO
11.	Lecturer in Plant Pathology	BC	ONE
12.	Lecturer in Agricultural Extension	SC	ONE (Temp.)
13.	Lecturer in Statistics	MBC/SC	TWO
14.	Lecturer in Economics	MBC	ONE
15.	Lecturer in Physical Education & Sports Sciences	BC	ONE (Temp.)
16.	Lecturer in Geology	OC	ONE
17.	Lecturer in Miruthangam	MBC	ONE
18.	Lecturer in Agricultural Chemistry	MBC/OC	TWO ONE (Temp.)
19.	Lecturer in Commerce (DDE)	SC	ONE
20.	Lecturer in Concrete Technology (DDE)	BC	ONE
21.	Lecturer in Education (DDE)	SC	ONE
22.	Professor of Computer Science & Engineering	OC	ONE
23.	Reader in Computer Science & Engineering	OC/MBC/BC	THREE
24.	Lecturer in Computer Science & Engineering	SC/BC/MBC	THREE

Qualifications

For Sl. No. 1 & 2

A person with a distinguished academic record with Doctoral Degree and with 10 years of experience of teaching at Post-Graduate level and of guiding research at Doctoral level with publications of high quality to his credit.

(OR)

An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research, experience of guiding research at Doctoral level.

For Sl. No. 3 & 4

A person with Ph.D. Degree with ten years of experience in teaching/research in the subjects concerned.

For Sl. No. 5

A person with a distinguished academic record with Doctorate Degree and with 10 years of experience of teaching at Post-Graduate level and of guiding research at Doctoral level with publications of high quality to his credit.

(OR)

An eminent scholar with published work of high quality actively engaged in research. Ten years' experience of teaching and/or research, experience of guiding research at Doctoral level.

Master's Degree in Library Science/Information Science / Documentation with at least fiftyfive percent of marks or its equivalent grade and a consistently good academic record;

M.Phil/Ph.D. degree in Library Science/Information Science/Documentation/Archives and Manuscript keeping.

For Sl. No. 6 to 9

A person with a good academic record with Doctoral Degree or equiv lent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About 5 years experience of teaching and/or research provided that atleast three of these years were as Lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding research work.

For Sl. No. 9

Research experience in biochemical pharmacology, biochemical toxicology, biochemical genetics is required.

For Sl. No. 10

(a) A person with a Doctor's degree or research work of an equally high standard; and

(b) Good academic record with atleast second class Master's degree in Business Administration with a minimum of 55% marks or its equivalent grade from an Indian University or an equivalent degree from a foreign University.

For one post First Class Engineering Graduate with M.B.A, is required.

For another post Law Graduate with M.B.A. is required.

For Sl. No. 11, 12 & 18

A person with a Ph.D degree or Master's degree in the subject concerned with three years experience. A minimum OGPA of 3.50/4.00 or its equivalent is essential.

For Sl. No. 13, 14, 16 & 19

(a) A person with a Doctorate Degree or research work of an equally high standard.

(b) Good academic record with atleast 55% of marks in Master's degree or its equivalent grade in a relevant subject from an Indian University or an equivalent degree from a foreign University.

For Sl. No. 15

(a) A person with an M.Phil Degree of a recognised degree beyond Master's level or published work indicating the capacity of the candidate for independent research work.

(b) Good academic record with atleast 55% of marks in Master's degree in Physical Education from an Indian University or an equivalent degree from a foreign University.

Specialisation in Cricket/Tennis/Shuttle Badminton is required.

(OR)

Minimum qualification with coaching diplomas from NSNIS in Kabaddi, Kho-Kho/Gymnastics.

For Sl. No. 17

(a) A person with a good academic record with atleast 55% of marks in Master's Degree in a relevant subject or an equivalent degree or diploma recognised by the University; and

(OR)

(b) Two years' research professional experience or equivalent creative work and achievements in his field of specialisation or a combined research and professional experience of three years in the field as an artist of outstanding talent.

(OR)

A traditional or professional artist with highly commendable professional achievement in the subject concerned.

For Sl. No. 20

A person with a Master's degree in Structural Engineering.

Wherever candidates with M.Tech/M.E. qualification are not available or M.Tech /M.E. candidates are not found suitable for appointment the essential qualification may be relaxed and First Class Engineering graduates may be appointed.

For Sl. No. 21

(a) A person with a Doctor's degree in Education or research work of an equally high standard; and

(b) Good academic record with atleast 55% of marks in Master's Degree in a relevant subject from an Indian University or an equivalent degree from a foreign University.

(OR)

(a) A person with a Doctor's Degree in any University discipline of research work of an equally high standard; and

(b) Good academic record with at least 55% of marks in M.Ed./M.Phil. Degree in Education from an Indian University or an equivalent degree from a foreign University.

For Sl. No. 22

(a) Ph.D. Degree in Computer Science with 5 years of teaching experience at Post-graduate level.

(OR)

Ph.D. degree in any Engineering with experience in Computer Applications and Computer Centre and 5 years of teaching experience at Post-Graduate level.

(OR)

M E. Degree in Computer Science or in any other Engineering discipline with 10 years of teaching/industrial experience in the field of Computer Science and Applications.

(b) Research and/or Industrial experience in the area of Computer Science Technology and Applications is preferable. Research experience with technical publications will be given credit.

For Sl No 23

(a) Ph.D. Degree in Computer Science.

(OR)

Ph.D. Degree in any Engineering with 2 years experience in Computer Applications and Computer Science.

(OR)

M.E. Degree in Computer Science or any other Engineering discipline with 5 years of teaching experience in the field of Computer Science and Applications.

(b) Research and/or industrial experience in the area of Computer Science Technology and Applications is preferable. Research experience with technical publication will be given credit.

For Sl. No. 24

M.E. Computer Science Degree

(OR)

M.E. Degree in any Engineering with atleast 2 years experience in Computer Science and Applications.

(OR)

Master of Computer Applications Degree.

(OR)

M.Sc. Computer Science with atleast 1 year experience

(OR)

B.E. Degree with first class in Computer Science and Engineering/B.E. Degree with first class in Electrical and Electronics, Electronics and Communication, Electronics and Instrumentation with atleast two years experience in computer manufacturing companies or in computer installations.

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Dr. P.R. Karpagaganapathy
REGISTRAR

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1. Mathematics (main) with Physics (subsidiary)

   OR

2. Physics (main) with Mathematics (subsidiary)

   OR

3. Physics and Mathematics combination (in the case of degrees with such combinations)

   OR

4. Computer Science (main) with Mathematics and Physics (subsidiaries)

   OR

5. Electronics (main) with Mathematics and Physics (subsidiaries)

Candidates with higher qualifications and those who were born earlier than 1st August, 1968 shall not be eligible for admission. Eligible candidates shall be certified medically fit and free from colour blindness by a medical officer not below the rank of an Assistant Surgeon. Such a medical certificate should be produced at the time of intervtew. Candidates should be Indian Nationals.

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Financial Assistance

All selected will receive a monthly stipend of Rs. 800/-, subject to satisfactory performance during the semesters.

How to Apply

Application forms and prospectus can be obtained from the Head, Department of Computer Science, Cochin University of Science and Technology, Cochin-682 022, Kerala, by sending a Crossed Demand Draft for Rs. 60/- (Rs. 10/- in the case of SC/ST candidates) drawn on the State Bank of Travancore, Trikkakara Branch, Cochin 682 022, and payable to The Head, Department of Computer Science, Cochin, along-with a self-addressed stamped (Rs. 14.0) envelope (13 cm x 30 cm) by registered post. Requests for application will not be entertained after 3.00 p.m., June 12, 1990. Completed applications should reach him latest by 3.00 p.m., June 22, 1990.

Ac. A1/5761/88
18 May, 1990

V.J. Papp
REGISTRA

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As per the G.O. MS. No. 2040 dt. 20.10.1989 of Government of Tamilnadu, the reimbursement of non-refundable fee for SC/ST students pursuing Correspondence Courses is permissible with effect from Ist July, 1989.

CAUTION:

SOME PRIVATE INSTITUTES/INDIVIDUALS POSING AS OUR AGENTS ARE ALLEGEDLY COLLECTING FEES, ISSUING APPLICATION FORMS AND PROMISING ADMISSION TO OUR COURSES. THE DIRECTORATE HAS NO SUCH AGENTS AND TAKES NO RESPONSIBILITY FOR THEIR ACTIONS. CANDIDATES ARE THEREFORE ADVISED TO CORRESPOND DIRECTLY WITH THE **DIRECTORATE ONLY.**

THE CANDIDATES ARE ADVISED TO APPLY DIRECT TO THE DIRECTORATE INDIVIDUALLY FOR APPLICATION FORM AS WELL AS FOR ADMISSION. APPLICATIONS FOR ADMISSION RECEIVED THROUGH TUTORIALS OR ANY OTHER AGENCY WILL BE SUMMARILY REJECTED.

The cost of application form and prospectus for each course is Rs. 25/- Applications will be sent to all by registered post.

APPLICATION FORM AND PROSPECTUS CAN BE HAD FROM THE DIRECTOR, DIRECTORATE OF DISTANCE EDUCATION, ANNAMALAI UNIVERSITY, ANNAMALAINAGAR-608 002 by sending a requisition along with a crossed Demand Draft for Rs. 25/- drawn in favour of the **Registrar, Annamalai University,** on any bank at Annamalai nagar/Childambaram, mentioning clearly the name of the course for which the application form is required and a self-addressed unstamped cover of size 25cm. × 15cm. Cheques, Postal Orders, Money Orders and Outstation Demand Drafts are not accepted. Demand Draft should be purchased on or after **4.6.1990**

Applications for all courses will be issued upto **23-7-1990.**

The last date for receipt of filled in application is **31st July, 1990.**

Applications can be had from the following Study Centres also on payment of Rs.25/- by Demand Draft drawn in favour of the **Registrar, Annamalai University**, as instructed above.

1. **MADRAS:** 19, Marshalls Road, Egmore,
Madras - 600 008 (Phone No: 861590)
2. **TIRUCHI:** 7, Gnanam Colony, 1 Main Road, Ramalinga Nagar, Woraiyur, Tiruchi-620 003
3. **SALEM:** 15, Dr. Subbarayan Street, Salem-636 001
(Near Palace Threatre)
4. **NAGERCOIL:** 70, Ammasi Madam Street (Near T.T.C. Bus Stand), Meenakshipuram,
Nagercoil - 629 001
5. **VELLORE:** 4, Thiagarajapuram, Vellore - 632 001
(Near Lakshmi Theatre)
6. **MADURAI:** 37, Besant Road, Chokkikulam,
Madurai - 625 002
7. **COIMBATORE:** 72, Sarojini Street, Ram Nagar,
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8. **NEW DELHI:** 47 (SFS) Basant Enclave,
New Delhi - 110 057 (Phone No. 5455582)
9. **ANNAMALAINAGAR:** DDE Building, Annamalai University,
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The Study Centres (1 to 8) will remain closed on all Tuesdays, Second Mondays and all other public holidays.

Those who want to get application by post should apply to the Directorate only and not to the Study Centres.

Filled in applications should be sent only to the **Director, Directorate of Distance Education, Annamalai University, Annamalainagar, Tamil Nadu, Pin Code: 608 002.** IN NO CASE FILLED IN APPLICATIONS SHOULD BE SENT TO THE STUDY CENTRES.

Application and Prospectus can be had from the Directorate of Distance Education, Annamalai University, Annamalainagar and the Study Centres from 4.6.1990.

Admission cannot be claimed as a matter of right and the Directorate reserves to itself the right of admission.

No. A1/1/90
PLACE: Annamalainagar
DATE: 14th May, 1990

DR. K. AYYAKKANNU
DIRECTOR

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University News

MONDAY, JUNE 11, 1990 Rs. 2.50

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   JR: Studies on reproductive biology of mammals and to develop in vitro assays for evaluation of antifertility agents.
   Post No. (ii): (Parasitology) (Reserved for ST)
   EQ: First Class M.Sc. Zoology (Specialisation in helminthology)/M.V.Sc. (Parasitology) or MBBS/Ph.D./M.D. Two years research experience in immunochemistry/immunology of helminthic infections desirable. **JR:** To Isolate, characterize and evaluate antigens of helminth parasites.
   Post No. (iii): (Med. Chemistry) (Reserved for ST)
   EQ: First Class M.Sc./Ph.D. in Organic Chemistry. Two years research experience in medicinal chemistry desirable. **JR:** To synthesise organic compounds of biological interest.
   Post No. (iv): (Botany) (Reserved for SC)
   EQ: First Class M.Sc./Ph.D. in Botany. Two years experience in collection and identification of Indian Plants particularly angiosperms and knowledge of International code of Botanical Nomenclature and herbarium methodology desirable.
   JR: Collection of plants/materials for Pharmaco-chemical investigations from various parts of India including marine samples and maintenance of herbarium.

GENERAL CONDITIONS:

1. The above posts carry usual allowance as admissible under the rules of Govt. of India. Total emoluments at the minimum and the maximum of the scale including HRA at present is as follows:—

Scale of pay	Minimum	Maximum
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2. Research experience should preferably be supported by publications in refereed journals.
3. The candidates will have to furnish certificates from prescribed authority in the required format attached to the application form.
4. Since it is not possible to call all the eligible candidates for the interview, the applications will be shortlisted for the purpose and the decision of the Director will be final.
5. Applicants called for attending the interview will be paid single second class rail fare to and from the actual place of travel or residence as mentioned in the application whichever is nearer to Lucknow Railway Station.
6. Applications for more than one Disciplines may be submitted separately for each Discipline.
7. The candidates in Government/Semi-Government Organisations, Public Undertakings and Autonomous Bodies should route their applications through proper channel.
8. Persons selected for the post of Scientist 'B' will be on a contract for a period of six years in the first instance **except** for CSIR employees already confirmed against lower posts.
9. The Institute has a system of periodical assessment promotion on merit.
10. The prescribed application form may be obtained from the office of the Controller of Administration, Central Drug Research Institute, Chattar Manzil Palace, P.B. No. 173, Lucknow-226001 (U.P.), by sending a requisition duly indicating the post and advertisement number alongwith a self-addressed envelope of size 23x10 cm. Any request for application form received after **19.06.90** will not be entertained for supply by post. Application duly completed (supported by the attested copies of certificates and testimonials) should reach the Director, Central Drug Research Institute, Lucknow, on or before **17.07.90**. Application received after this date will not be considered.
11. Canvassing in any form and/or bringing in any influence political or otherwise, will be treated as a disqualification for the post.

UNIVERSITY NEWS

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

HIGHER EDUCATION
METHODS AND MEDIA

Jagannath Mohanty*

Objectives of Higher Education

Higher Education seeks to promote excellence, adventure of ideas and search for truth. It is to cultivate new knowledge and interpret old knowledge in the light of new needs and discoveries. It has to provide the right kind of leadership in all walks of life and identify gifted youth and help them develop their potential to the full by cultivating physical fitness, developing the powers of the mind, right interests, attitudes and values. According to Amrik Singh (Sharma & Ahmed Ed, 1986, pp 4-5) the objectives of higher education are to develop these capabilities in an individual which would help him to conceptualise a phenomenon or situation and enable him to contribute to societal development through his knowledge, skills and knowhow, as well as by generating new knowledge. Accordingly, the objectives of education at the undergraduate and postgraduate level are:

(i) imparting in-depth knowledge of the subjects concerned;
(ii) developing critical and analytical abilities;
(iii) developing the ability to relate and use this knowledge in real life-situations;
(iv) developing vocational and professional skills; and
(v) developing social, cultural and aesthetic values.

The National Policy on Education, 1986 (NPE, 1986, p 14) has aptly enunciated that Higher Education provides people with an opportunity to reflect on the critical social, economic, cultural, moral and spiritual issues facing humanity. It contributes to national development through dissemination of specialised knowledge and skills. It is therefore a crucial factor for survival and being at the apex of the educational pyramid, has also a key role in producing teachers for education system.

Need for Good Methods

These objectives are reflected in the curriculum and syllabus which are again transacted through instructional materials and teaching-learning activities. Teachers are the key agents who translate the abstract into concrete and dreams into realities. Whatever may be the subject matter or content or message of communication, suitable tools and techniques, media and methods are of prime importance for realising the objectives most effectively and efficiently. The Report of the Secondary Education Commission (1965, p. 85) has clearly pointed out, "But every teacher and educationist of experience knows that even the best curriculum and the most perfect syllabus remain dead unless quickened into life by the right methods of teaching and the right kind of teachers".

In discussing the problem of right methods, the Commission has opined that a method is not merely a device adopted for communicating certain items of information to students and exclusively the concern of

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**Director, Academic Staff College, Utkal University, Vani Vihar, Bhubaneswar-751004.*

the teacher who is supposed to be at the "giving end". Any method, good or bad, links up the teacher and his pupils into an organic relationship with constant mutual interaction. It reacts not only on the mind of the students but on their entire personality, their standards of work and judgement, their intellectual and emotional equipment, their attitudes and values. Good methods which are psychologically and socially sound may raise the whole quality of their life and bad methods may debase it. Good methods of teaching should aim at realising all the objectives, cognitive, conative and affective.

At the shool stage, trained teachers are usually exposed to a number of methods of teaching, some of which are demonstrated by teachers, educators and trainees themselves during their term of practise lessons or student teaching. But college teachers are neither trained nor are exposed to different models and methods of teaching. Lowman (1987, preface) with his own teaching experience in USA has observed, "Few college teachers receive instruction in how to present intellectually exciting lectures, to lead engaging discussions, or to relate to students in a way that promote motivation and independent learning". A model of effective teaching is based on two assumtions : (i) the college classroom is a dramatic arena first and a setting for intellectual discourse second, and (ii) it is also a human arena, wherein the interpersonal dealings of students and teachers—many of them emotional, subtle and symbolic—strongly affect student morale, motivation and learning.

College teachers need be made "skilled artists" and it is a long standing art. a time-taking process. Lowman (1987) has cogently stated, "Excellent teaching captivates and stimulates students' imaginations with exciting ideas and rational discourse. Student satisfaction and enjoyment are stressed here as important criteria for successful teaching". Thus successful teaching and students' satisfaction as well as motivation are strongly correlated; teaching and learning are not thought of as cold and technological, but warm, exciting and personal. Rather college teaching should be interpersonal and an incisive enterprise involving human beings and their personalities. It should not be compared to mechanical cause and effect relationships.

Components of Teaching Methods

According to Lowman, superior college teaching involves two distinct sets of skills. The first is speaking ability which includes skills not only in giving clear, intellectually exciting lectures but also in leading discussions. The second is interpersonal skills that allow one to create a sort of warm, close relationship with students that motivate them to work independently. In order to become an excellent college teacher, one must be outstanding in one of these sets of skills and at least competent in the other. Thus college-teaching has been viewed as two-dimensional (i) Intellectual Excitement, and (ii) Interpersonal Rapport. The former has again two components : Clarity of an instructor's communications and their positive emotional impact on students. Clarity of communication is related to what one presents, and positive emotional impact results from the way in which material is presented. Clarity denotes both accuracy of content and effectiveness of presentation. Besides this intellectual arena classroom is a highly emotional and interpersonal arena, which includes students motivation, morale, liking and dislikings. These two dimensions are however intermingled and overlapping for bringing about effectiveness in teaching.

Khanna (Sharma & Ahmed, Ed. 1987, p. 16) has succinctly remarked, "An important parameter for improving the quality of education lies in the art of imparting education or, in other words, on teaching methods or teaching style. It is perhaps necessary to have a look at the various methods of teaching which are followed in different university/college systems." Methods of instruction at the higher education level may fall into two broad categories, namely, the mass method and the individual method. Mass method comprises lectures, demonstrations, practical experience, syndicate methods, group discussions and the use of audio-visual aids. Individual method comprises mostly individual assignment, programmed learning and computer-assisted instruction.

Electronic Media

Besides methods of teaching, other elements which are equally important and supportive to teaching effectiveness are various media and materials. This age of science and technology has a great impact on educational methods or teaching-learning process. On account of the great influence of electronic media, this age is called the Fourth Revolution in Education. Various kinds of media and materials viz. radio, television, audio/video cassettes, tape recorder, computer-assisted learning, programmed instruction etc , are being gradually used more and more in the field of education.

(*Continued on page 6*)

English and Academic Research in India

26 JUN 1990

An Overview

P. P. Dayal*

A number of Vice-Chancellors of Indian universities met in 1980 under the banner of the Association of Commonwealth Universities for its Council Meeting held at Bombay, Calcutta, Trivandrum and New Delhi and presented papers outlining the research profile of the Indian universities. Most of them talked of research activities in science and technology. Only a few mentioned social sciences. Just one or two made a very brief reference to researches in Humanities. And none mentioned English language and literature.

The lowest priority accorded to research in English language and literature in India is the outcome of a complex interaction of socio-political and other forces the details of which we need not go into here. This alone provides the setting, the background, against which teachers and scholars of English must need carry on their work here. It is against this background that the whole question of quality and credibility of the doctoral dissertations in India has to be reviewed and examined.

The opinion of the Vice-Chancellors at their conference in 1980 constitutes an important effort to understand and define the significance of teaching and research in the Indian universities. An amorphous mass of loosely-held views and ideas crystallized for the first time. It was a landmark. Though the Vice-Chancellors talked mostly of scientific research, quite a good deal of their observations were of a general nature and fully applicable to the general state of academic research. This paper freely borrows facts and ideas relevant to our concern.

It was after the first World War that the universities began to interest themselves in research, However, it was only after the Indian Independence in 1947 that serious attention was paid to research. It received tremendous support and attention. There has been a very large increase in research output during the last four decades. In terms of size the research sector in India is very large. There are more than 10,000 supervisors and 20,000 research scholars in the Indian universities today. (Amirk Singh. Times of India 7.10.89).

The management of research by our universities has come in for a great deal of adverse criticism. At present the academic administration of the research wing in most of the universities is mixed up with undergraduate and postgraduate administration. This naturally leads to delays, nepotism and frustration. Policies remain undefined and vague. Research administration requires special technical knowlede for decision making, particularly in regard to inter-disciplinary matters cutting across old conventional boundaries. The task of university management should be the motivation of the individual researcher—whether a student or a teacher. The university should provide the facilities as well as the psychological atmosphere for scholarly enquiry.

The degree of attention that research gets in a university depends upon the emphasis given to research by its administrators and academic bodies. Very often, there is no coordination. Individual teachers are free to pursue the kind of research in which they are interested. The initiative is in the hands of the individual scholar who is free even to select the topic of research and carry on his research work under a supervisor of his choice.

However, research management should not mean that research in certain areas is to be supported and to be discouraged in certain other areas because of its utility or relevance. "Relevance" is a much-used and much-maligned term. It has meaning only in relation to certain points of reference. The universities are often criticized for an ivory tower attitude to research and for pursuing academic excellence for its own sake. It is said that much of the current Indian research is highly wasteful, repetitive and devoid of credibility.

Let us have another look. The fundamental role of a university remains the continuity of culture and the transmission of knowledge on one hand and their

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advancement on the other. Everything else is peripheral and transitory. Ideally, a balance between teaching and research is the hallmark of a good system of university education. We cannot expect our graduates to be able to advance the knowldege in their fields if they are not familiar with the latest developments. Knowledge is a constantly growing and expanding thing that requires revision and continuous reassessment of the inheritance. The purpose of research is to undertake a systematic enquiry into a subject matter in order to discover or revise facts and theories. If research scholars are cut off from teaching programmes and assignments, this may bring about some stagnation of the mind, for, nothing can be more stimulating than close contact with the advanced students in a subject. Apart from this, it is from these students that the future research scholars have to be picked up. It is at the level of Ph.D. that the student is introduced to real research.

Ph.D. is essentially an individual research enterprise under the guidance of a senior scholar. Today hundreds of scholars are registered for Ph D. In many Indian universities the fresh Master-degree holder has little idea of the subject in which he wants to work for his Ph.D. A guide is, therefore, needed to suggest a number of topics from which the student may choose. 3 to 4 years are needed to complete the work.

There has been large-scale criticism of the hackneyed ways and procedures and adherence to the bureaucratic red tape. A number of factors have contributed to lower the credibility of Ph.D degree awarded by our universities. Many of our research scholars have a very weak academic foundation. Most of them do not wish to work hard. Many of them have a poor perception and the capacity of expression. A broader base of interdisciplinary knowledge is beyond most of them. Very few are sincerely committed to quality and academic excellence.

The work that many of our research scholars produce is far from desirable in most cases. It often lacks originality. In a number of cases evidence of copying from 'foreign' or already-used material in the subject is conspicuous. If not spurious, the work is so thirdrate in quality as to need no consideration. The distressing factor is that even these are 'considered'.

To a large extent this evil has cropped up because of research stipulations added to the qualifications required for appointment of Lecturers. The Ph.D. degree has begun to be viewed as a potential job-getter. The manner of appointments and promotions and the prevalent academic atmosphere deserve criticism. In order to 'rise' in society, in profession, not merit but canvassing, not hard work but the goodwill and support of the high-ups is what matters. Decisions are frequently 'managed' to make or mar a career. Examples will automatically flash in our minds.

Research scholars, too, often complain against discrimination on the basis of sex, caste, religion and even domicile. According to a survey report, 30% of the supervisors do not find time for supervision. 40% of them do not actually take part in the research work of their scholars. 30% do not even check the concept and its manner of execution. This is what Prof. Amrik Singh defines as 'professional irresponsibility' in the field of research supervision. The attitude of the supervisor matters substantially. Too much of orthodoxy or even of liberalism may run counter to academic responsibility, integrity, quality and value. If unworthy theses are accepted or even considered and evan good theses rejected on non-academic considerations, the aims of research work would be frustrated.

We hear that some investigations are going on in some of our universities regarding the ushering in of a climate conducive to originality and creativity in research work. Not everyone of the dissertations may be a masterpiece, yet the creative ideas contained in them have to be identified and catalogued. Publication of abstracts of dissertations and of work in progress must be made more comprehensive and timely, in order that our scholars are able to make some significant contribution to the sum total of human knowledge and experience in humanistic studies where old values in a new context present special opportunities for creative work.

Fundamental research of academic nature requires encouragement as a general policy of higher education with a view to providing vitality of teaching at higher levels and production of professionally skilled manpower for teaching at the university level. What is regarded as purely academic or theoretical research usually forms the basis of applied research work later.

Education, as an instrument of change, is not mere acquisition of knowledge; it also involves the training of the mind and an inculcation of a better society. Our universities have to provide an intellectual leadership to the society and not remain content with mere teaching and academic research.

At a modest estimate there are about 500 supervisors and 2000 research scholars in English, including Indian English, in the universities and other institutions of higher learning in India today.

At a very recent conference of the Association of Indian Universities at Srinagar in Kashmir, attended by about 100 vice-chancellors, Prof. Yash Pal, Chairman of the University Grants Commission confessed that the total amount of research support to the Indian universities and other Institutions for scientific research for the last 40 years is still far less than what is spent on the same outside the universities in one single year. (Times of India, 7.10.89) This conference also called for a substantive increase of the national budgetary allocation on education from 3.2% to 6%. (Times of India, 10.10.89).

Regarding financial support given for research work in Social Sciences and Humanities, the less said, the better. The acute deprivation stares us in the face.

As we focus our attention on academic research in English language and literature, we are overwhelmed by a general mind-boggling apathy. Exact figures are not available, because, unfortunately, the universities do not keep any tag on their expenses in that manner. Whatever little is made to ooze down to English may be owing to the tenacity and perseverance of the individual scholar or supervisor. We have to fend for ourselves and make the best of what we may get. In matters of study leave, research grant, library facilities, travel grants and money for publication of the thesis, only a few lucky ones, who know how to pull the right strings, may succeed in their efforts.

Little can be achieved without the help of a good library fit to cater to research scholars; yet most of our libraries are hopelessly inept. Relevant journals and documents are rarely available. As a result of such a discouraging academic and financial involvement it is not surprising that many of our research scholars drop out. Motivation suffers.

Out of the remaining scholars nearly half opt for Indian English studies : convenience makes them shy away from the mainstream. Not more than a hundred scholars, on an average, manage to get their theses accepted for the award of Ph.D. degree in English in one year. Hardly 10% are good: the rest just so so! This is the state of English researches in India today, with nearly 20 million users !

As rules and regulations stand today, anyone with a Ph.D. degree can become a supervisor: even without a Ph.D. one can become a supervisor if one is a Reader or a Professor or even a Principal. Fields of specialization seem to have lost any meaning. One can cross over from literature to linguistics and from linguistics to literature. Narrower areas are frequently crossed over by most of us with impunity, Our conscience hardly pricks.

Any follow-up of such deliberations is frustrated by our customary apathy to things inconvenient and unfamiliar. The recommendations made at the Srinagar conference may be in order, but it is doubtful if even one-tenth of these would be implemented. It is because of the "unwillingness of those vested with powers of decision making to change their attitudes and modes of working". (Amrik Singh. Times of India, 7.10.89).

Part of this unwillingness is due to the proverbial Indian ambiguity of character. Concern is shown on one hand over declining standards of teaching and research, yet, on the other hand, an attitude of compromise and complacence prevails as a corollary of another Indian policy of "Live and let live"—an euphemism for what we may be allowed to call a kind of "so-so-ism" in an area of activity where the quality of output cannot be compromised with.

The spirit behind this "so-so-ism" is a cliche in Hindi: "*chalta hai*". Any rendering of this in English might miss the multiple nuances—of appeal, defence, opinion, explanation, adjustment, compromise. elasticity of behaviour and assessment, tolerance, resentment, light cynicism, and what not. This spirit, this policy, this cliche, has done incalculable harm to the Indian ethos and polity, and the quest for excellence has suffered.

Any failure to appreciate the value of theoretical academic research might render us guilty of the same apathy and negligence that our political leaders show towards the whole question of education in India. Their god is immediacy, expediency.

Aren't we too motivated by immediate narrow personal considerations ? Should we too risk the forgetting of distant goals ?

Let us not compromise on quality, prestige and value. Academic literary research is different from applied scientific, technological and industrial research. Fundamental research broadens the base, widens the perspective, expands the horizon, and enables us to grasp the basic underlying unity of all knowledge, all thought, all power, all activity. It has a relevance to the cosmic scheme of things, the absolute human values. 'We have an opportunity of contributing to world thought through research in Humanities where a rich universal cultural heritage places us at a special advantage.'

Good research work today involves keeping up with a vast amount of literature which is ever growing. Great care and tremendous amount of time are required for development of research projects and proposals. Management of research becomes very large, complex and expensive.

We mention here some suggestions made to improve research work in the universities :

1. Creation of a mechanism designed to facilitate research;
2. A committed Faculty willing to engage in research activity;
3. Knowledge of research policies and funding agencies, and competence in the preparation of research proposals;
4. Suitable schemes for identification and nurturing of talents and for the pursuit of excellence; and
5. Organizing suitable training and orientation programmes for the development of skills needed in research.

Sloganistic and high-sounding, as these suggestions appear to be on the surface, they are true and well-meaning, nevertheless. Our task should be to resolve these into several job-bits and place them in a feasible sequence. The sequence would indicate the line of movement towards quality and credibility, a line that all scholars and supervisors should always be able to follow. ☐

Higher Education : Methods & Media

(*Continued from page 2*)

Now satellite has come in a very big way to provide television coverage in the length and breadth of this wide world. For example, in India educational television programmes are provided with the help of a satellite borrowed from USA to the primary schools of six states i.e. Andhra Pradesh, Bihar, Karnataka, Orissa, Madhya Pradesh and Rajasthan under Satellite Instructional Television Experiment (SITE). Since August 15, 1984 Door Darshan has been relaying TV Programmes for education particularly higher education sponsored by the University Grants Commission (UGC) all over the country. This has been possible only with the help of the satellite INSAT, 1-B These tertial level educational programmes are telecast twice everyday for an hour via this satellite so that the versatile medium of television has not only reached even the rural schools and colleges, but is also likely to revolutionise the entire teaching-learning process. In addition to indigenous programmes, suitable films from foreign agencies like BBC and Open University of the UK and USA are being utilised for collegiate-level TV Programmes.

Selection & Orientation

Selection of media and materials suited to the objectives and content is of great significance. Apart from ETV programmes which are combination of various A-V. media/materials, radio & audio cassettes can be used for teaching musical and language lessons with immense advantage. Similarly, computer-assisted as well as programmed instruction can be highly effective with the help of computers and teaching machines. Hence effectiveness, particularly cost-effectiveness need be considered in the selection of media & materials Multi-media package is regarded very effective now-a-days for ensuring quality of education. Human interaction need be supplemented to the media use for greater effectiveness. The teachers as well as educational planners and administrators should be properly oriented about the use and importance of the various technologies in education. They should be made fully aware of their potential, their strengths and weaknesses so that teching-learning process will be more effective and efficient at the higher education level. ☐

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Library & Information Science Education in India

Trends and Issues

P.B. Mangla*

Background

In librarianship, the past history of India, like that of several other countries in the East, is that of a country having libraries with little emphasis on 'library service' in the modern sense. The recognition of the vital role of libraries in the educational, scientific and socio-economic development of the country is a rather recent phenomenon which came into existence, say, during the past 2-3 decades.

The need for professionally qualified personnel to manage and run these libraries effectively and efficiently was however duly recognized during the first half of the present century and consequently, library education programmes has been started at several places much before independence in 1947. For example, the first one-year postgraduate Diploma course in Library Science, which in several ways served as a model for developing Library Science Training Programmes in the country during the pre- and post-independence period, was established, at the initiative of S.R. Ranganathan, at Madras University as early as 1937. The total number of universities conducting the Diploma Course at the time of independence was 5.

After independence, the stimulus for the growth and development of libraries, documentation centres, information centres and of library science education came from the progress in and extension of education, scientific research and programmes of socio-economic development in the country. These programmes of national development and reconstruction, started in 1951 with the commencement of the first 5 year plan, have already progressed through seven such Plans. As a result of these developments Library and Information Science (L&IS) today is a well recognized discipline of study and research at the postgraduate level in about 65 universities in the country.

All these 65 universities conduct a one-year postgraduate course leading to the award of Bachelor's degree in Library Science (B.Lib.Sc.) or Library & Information Science (B.L,I.Sc.). About 50 of them have a further one-year course for the Master's degree in the subject called M Lib.Sc. or M.L.I Sc. About 30 universities enrol students for Ph.D. degree and one university *viz.* University of Delhi has been conducting a one-year post-Master's degree course since 1977 leading to the award of M. Phil. degree in the subject.

In addition to universities, the Documentation Research and Training Centre (DRTC), Bangalore, and Indian National Scientific Documentation Centre (INSDOC), New Delhi also offer training courses in documentation and/or information science leading to the Associateship of the respective centres.

Library and Information Service Infrastructure in the Country

Since a study of L&IS education in a country must necessarily be preceded by an overall view of its library and information services, it would be relevant to enumerate some of the developments in this field in this country during the past 3-4 decades. Such information would be helpful in understanding the needs of the personnel at different levels and the L&IS education programmes can thus be planned and developed in a more realistic and objective manner, not only to meet immediate needs but also to plan for 8-10 years ahead.

To highlight some of the achievements in this field; it may be mentioned that the country now has (1) four national libraries, viz., the National Library at Calcutta, the National Science Library, the National Medical Library at Delhi, and the Indian Agricultural Research Institute Library at Delhi can also be considered as the national agriculture library, (2) an infrastructure of public library services in several states and union territories, with public library legislation in eight States, viz. Tamil Nadu, Maharashtra, Karnataka, Andhra Pradesh, West Bengal, Manipur, Kerala and Haryana, (3) good libraries in colleges, universities, institutions, and government minis-

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tries/departments, (4) bibliographic control of Indian publications with the publication of the Indian National Bibliography since 1958, (5) documentation services at the national level provided by Indian National Scientific Documentation Centre (INSDOC), Defence Science Information and Documentation Centre (DESIDOC), and National Social Science Documentation Centre (NASSDOC), and (6) Library Associations at the national and state levels.

In addition, the Government of India, Department of Science and Technology, has already started the implementation of its plan for the National Information System in Science and Technology (NISSAT) and four sectoral centres : Leather, Drugs and Pharmaceuticals, Food Technology and Machine Tools, have been in operation since 1977. A proposal for establishing a national information system in the social science (NISS) is already under active consideration by the Indian Council of Social Science Research (ICSSR). Several institutions such as Bhaba Atomic Research Centre (BARC) and the Indian Council of Agricultural Research (ICAR) are already functioning as national input centres for the international database, INIS and AGRIS, respectively. Collaboration with several other global information systems and programmes, such as UNISIST, ASTINFO, APPINES, DIALOG, has been developed so as to have all possible cooperation with and access to the information resources at the international level. Science Information Centre at Bangalore organized by UGC aims at providing computerized bibliographic information service to teachers and researchers in the country.

Further developments are envisaged during the period of the 8th Five-Year Plan, 1990-95. A Working Group to make recommendations for this period has already been appointed by the Planning Commission (Government of India) which would be soon finalising its report. Also in December 1988 the University Grants Commission (UGC) brought out a report entitled Development of Information and Library Network (INFLIBNET) to develop cooperation and coordination amongst library and information systems and services in the country which is under active consideration of the UGC for being implemented.[12] Other two reports which deserve mention in this context are : One by the Planning Commission Working Group on the Modernization of Library Services and Informatics for the 7th Five-Year Plan (1985 90) submitted in 1984,[9] and the other entitled National Policy on Library and Information Systems : A Presentation[10] submitted in 1986 by the Committee appointed by the Government of India, Department of Culture.

Most of these libraries, documentation centres and information centres are administered by professionally qualified staff and are planned and run on modern lines. In order to meet the varied and complex needs of user groups which consist of researchers, decision makers, managers, and planners several special libraries, documentation centres and information centres already provide such services as SDI, CAS, repackaging of information and referral services. Computerized information services are being planned or extended by some of these libraries in the country. It must however be pointed out that apart from a few libraries, most of them do not at present use computers or other mechanical gadgets for their library or information services. They continue to depend largely on the so-called 'conventional' methods and procedures in organizing their documentation and information services.

In view of the above it would be essential to mention that majority of the L&IS graduates who find employment in these libraries, documentation centres and information centres still are required to perform their duties by using their knowledge of the so-called 'conventional' systems, methods, techniques, etc. At the same time it may be pointed out that a proper environment for further developing the infrastructure wherein computers and other electronic gadgets would be used does exist in the country particularly because of vital developments such as (i) use of satellite communication technology, and (ii) easy availability of microprocessors and computers at lower prices.

Major Areas of Discussion

The vast expansion in L&IS education in the country after independence has naturally raised numerous issues and problems which have been reviewed, criticized and discussed in committee reports, conferences, seminars and workshops during the past three decades or so. Although the Advisory Committee for Libraries appointed by the Government of India, in its Report (1960)[1] made several important recommendations for developing the training programmes in the country, yet the Report of the University Grants Commission (UGC) Review Committee (1965) called *Library Science in Indian Universities*[13] can rightly be considered as the first comprehensive document on the subject. Important seminars and workshops that have discussed this subject in greater details are (i) seminar on Education for Librarianship in India held at Chandigarh in 1962, under the auspices of the Indian Association for Special Libraries and Information Centres (IASLIC), (ii) three seminars/workshops held at the University of Delhi, Department of Library Science : (a) Seminar on the Teaching of Library Science (1966)[11], (b) Workshop on the Methods of Teaching and Evaluation in Library Science (1973),[7] and (c) Seminar on Library and Information Science Education in India (1977)[4], (iii) two National Conventions on Library Science Education held in 1976 under the auspices of the Indian Library Association (ILA), and (iv) the Seminar on Library and Information Manpower Development held at Bangalore in 1976 under the joint sponsorship of DRTC and INSDOC. The present author acted as Director of the 1973 and 1977 Workshop and Seminar respectively held at the University of Delhi and of the two ILA Conventions of 1976. Several aspects of this subject were discussed at two international seminars as well held at Bangalore : (i) the Meeting of the Supervisors of Library and Documentation Schools in the Asia Region (1976)[9] under the sponsorship of Unesco, and (ii) the Indo-US Seminar on Scientific and Technical Information (1977)[2] under the sponsorship of the Government of India, Department of Science and Technology. A few other seminars held during the past 8-10 years have also debated different facets of this theme.

In addition, the UGC has appointed a Panel of Library and Information Science to review periodically the different aspects of the existing L&IS education programmes in the country and make recommendations for future developments. A few years ago the panel finalized its recommendations with regard to areas such as status of library schools, teaching faculty, financial, support, physical facilities, syllabi for BLIS, MLIS and M.Phil. programme, etc. and these were then sent to the library schools in the country for implementation.[14]

Levels of Training

—Bachelor's and Master's Programmes in L&IS

(a) As in the United States, Canada and even to some extent the United Kingdom, librarianship in India is largely a postgraduate profession. It is generally agreed that in order to have well qualified and competent library and information scientists at senior levels, the training programmes in L&IS should continue to be conducted at the postgraduate level.

(b) As mentioned earlier, the emphasis continues to be on the first professional degree, viz. B.Lib.Sc./B.L.I.Sc. On an everage about 2000 graduates qualify for this degree every year in the country. With regard to the Master's degree programme, of the 50 library schools, only a few are in a position to admit more than 5-8 students every year with the result that the annual output of all the 50 library schools is about 350.

(c) Though the B.Lib.Sc./B.L.I.Sc. course is conducted at the postgraduate level, yet it is equated with the undergraduate courses in the universities because of its present denomination. It is generally felt that a more appropriate name needs to be given to this course so as to indicate that it is a postgraduate course and thus is different from the regular bachelor's degree courses at the undergraduate level.

(d) One of the issues often discussed is : whether the training programmes in L&IS should continue to follow the present pattern or should the pattern be changed to a two-year Master's degree by discontinuing the intervening B.Lib.Sc./B.L.I.Sc. Degree ? In this context no final pattern has however emerged as yet.

In an effort to study the pros and cons of this question various points given below deserve careful consideration.

A. *In Favour of Two-Year Master's Degree Programme*

(i) In libraries of different types, documentation centres, and information centres excepting for the junior level positions, a Master's degree in L&IS with preferably even a Master's in a subject is much desired;

(ii) Since after joining a job it is not easy to obtain study leave, deputation, etc. for further studies, one with a mere B.Lib.Sc./B.L.I.Sc. degree may find it quite difficult to improve one's qualifications by qualifying in a Master's degree examination at a later stage;

(iii) The duration of two academic years would provide teachers and students sufficient time to have a reasonably comprehensive coverage of theory as well as practice of the subject and would thus help in improving the quality of the end-products; and

(iv) It would bring an enhanced status to the library school and its teachers in the university set up.

B. *In favour of Retaining the B.Lib.Sc./B.L.I.Sc. Programme*

(i) Generally it is found that although the minimum qualification for admission to the B.Lib.Sc./B.L.I.Sc. course is a basic bachelor's degree, yet because of a tough competition for admission, most of the library schools in the country admit only those who possess at least a good second class Master's degree in a subject. To acquire a Master's degree in the country one requires 17 years of education, and an additional one year would mean that one has to spend 18 years on education before one is eligible for a professional position in a library, documentation centre or information centre.

In every batch of the B.Lib.Sc./B.L.I.Sc. students there are always quite a few students who, because of various reasons such as economic, domestic, or lack of interest, are not quite willing to spend one more year for doing the Master's degree course in L&IS. It is also observed that quite a good percentage of women students who join the B Lib.Sc./ B.L.I.Sc. course these days in larger numbers, generally fall under this category;

(ii) Quite a few students, and generally those of the medicore type, are not that ambitious to make a quick rise in their professional career. They are quite satisfied to join junior positions and avail of the chances for promotion either on the basis of their seniority in service or by improving their qualifications at a later stage;

(iii) Several existing library schools in the country are not adequately equipped with teaching and other facilities to run the 2-year Master's degree course; and

(iv) Because of the resultant increase in the number of Master's degree holders who would thus qualify from the library schools, the problem of finding suitable employment would become quite difficult. This point gains further significance because like several other professions there still is no proper manpower planning in this field in this country.

Since the abolition of the Bachelor's degree programme at present is not generally desired, it would certainly be valuable if some of the better library schools were to experiment with conducting the 2-year Master's degree course. Such an experiment which may be spread over a period, of say, 5-8 years, would provide an ample opportunity to the teachers, librarians and other employers to make a comparative evaluation of the products of the two systems. Such an evaluative study would certainly be useful for reorganizing the present pattern of the L&IS education in the country. It would be essential however, to ensure that students completing their educational programmes under these two systems would not be at any employment disadvantage with respect of each other.

C. *Another Alternative Pattern*

As another alternative it may also be suggested that like other subjects, L&IS be offered as one of the subjects at the undergraduate degree level in colleges and universities, for the three-year Bachelor's degree which may be called B.A., B.A. (Hons.) or B.Lib.Sc. degree. Those who would secure such a degree may later on be given preference for admission to the 2-year master's course in L&IS. Otherwise with only the undergraduate degree they should be considered as quite suitable for professional positions at junior levels. The argument usually given against this pattern is that since a library scientist or information scientist at a senior level deals with information or knowledge contained in documents as such, it would be more appropriate for the entrants to the profession to have sound academic background and understanding of a subject(s). It is therefore advocated that a bachelor's degree with Honours, or even preferably a master's degree in a discipline, should be considered essential for admission to the library schools at the University level.[3]

—M.Phil./Ph.D. Programmes

The overall pattern of education and research for M.Phil. and Ph.D. degrees follows the pattern of other subjects in universities or institutes of higher learning. As mentioned earlier, the University of Delhi is still the only University conducting a one-year full time M.Phil. programme after the Master's degree and already about 50 students have been qualified for this degree. A Ph.D. student generally has to work for a minimum of 3-4 years before he can submit his thesis.

Course Contents

One of the areas which in particular needs to be reviewed is with regard to the course contents. On the basis of their course contents and teaching programmes the library schools in the country can be broadly classified into three categories; first, those which largely continue to follow the traditional courses, and these schools are still in majority; second, those which are more progressive looking in their approach so as to equip their students with knowledge of library science as well as information science and thus most suitable to meet the changing manpower needs in the country (e.g. Delhi, Mysore, Kerala, Madras and Osmania) and third, the library schools offering courses under the denomination of documentation or information science, such as DRTC and INSDOC.

Since the present age is rightly called an age of 'information explosion' the rich resources of information available in the world as a whole certainly need to be tapped and exploited for productive use merely because it is a well recognized fact that man's judgement is no better than his information. There is therefore a much greater need today for specialists with expertise in selecting, organizing and presenting information to the user at a time and place where he needs it and in a form which would best suit his purpose.

It would be relevant to emphasise here that today a fairly good idea about the vital role of computers and other electronic gadgets in libraries, documentation centres and information centres can be evinced by the success with which they are being used in developed countries and in certain developing countries including India, for various types of jobs and services such as circulation control, book acquisition, house-keeping jobs, SDI, CAS, etc. The computer with on-line terminals dispersed over an extensive geographic area for facilities such as centralized cataloguing, network planning, resource sharing etc., already promises more effective and efficient library and information services with substantial reduction in operational costs. These innovations have not only greatly changed the traditional training programmes in library schools the world over but have also made it possible for libraries, documentation centres and information centres to provide various types of bibliographic and reference services which are found to be really useful by the clientele.

In view of these developments and needs, a library school in this country must provide proper place for these new areas while designing its curricula.

—Conventional courses vis-a-vis Information science courses

It needs to be mentioned here that the need for a proper coordination and balancing in the curricula between the so called 'conventional' courses and new areas of 'information science' would largely depend upon the present and future developments in library and information services in a country or region. In view of the fact that in this country majority of the libraries still would take much longer time to use electronic gadgets, the L&IS programmes must be so designed as to equip the students with (1) knowledge and techniques to handle the immediate job requirements in an effective manner, and (ii) knowledge to develop programmes, procedures and services on modern lines wherein the use of computers and other electronic gadgets could be made to achieve better results.

Whereas at present students with education only in 'information science' as such would be needed in a few special libraries, documentation and information centres, it is strongly felt that to meet the larger manpower needs in the country the majority of the students should have a proper blending of education in 'library science' as well as 'information science'. It is the considered view of this author that while the continued emphasis (or rather over emphasis) on 'conventional' techniques in the training programmes would in the long run make our graduates misfits in the changing environment of library and information services, to make them specialists in the areas of 'information science' alone, also would be less helpful at the present stage. It is because of this need that several library schools have not only revised their curricula but have also redesignated their degrees as Bachelor's/Master's degrees in Library and Information Science.[5] Such a blending between 'library science' and 'information science' has also been considered essential by the UGC Panel on Library and Information Science and the courses recommended by it for different levels as given in Appendix I reflect this need.

From my own experience in the University of Delhi Library School, it may be worth mentioning that during the course of our discussions for revising the Master's programme several years ago, questions such as what is information science ? and how much of information science ? were often raised and considered. Although it was not always easy to find-satisfactory answers to these questions it was finally agreed that there was certainly a great need to introduce various new areas such as 'computer application in libraries', 'systems analysis', 'information storage and retrieval' etc. in the curriculum. The nomenclature of the course was also changed for the first time in the country to Master's degree in L&IS in 1972. About 400 students have already qualified with the M.L.I.Sc. degree during the past 17 years from the University of Delhi. Although, we have still not conducted any formal survey to ascertain how much use these students have been able to make of this new knowledge in their actual work on jobs, yet, during informal discussions with many of them, it has been found that this new knowledge has greatly changed their whole concept and outlook of library and information work and services. Some of them have had useful interaction with senior colleagues and employers to plan and organize their collections and services on modern lines wherein the use of computers could also be introduced in the long run. In other words such a knowledge does equip them with a feeling of self confidence and competence to discuss new trends with information specialists, computer scientists, etc. and thereby they can take steps to develop these services on new lines.

In view of the emergence of 'information science' as a discipline which lays great emphasis upon the processing and dissemination of information with the use of computers, it seems really essential to reiterate that library schools in the country must take steps to redesign their curricula, particularly at the Master's degree level, so as to educate their students in this new and challenging area of study.

Teaching Faculty

Upto the late 1950's the teaching faculty in library schools consisted of part-time teachers usually drawn from their respective university libraries. The university librarian invariably functioned as head of the library school. The need for full-time teachers was duly recognized by the University Grants Commission (UGC) Review Committee (1965) which said :

> "While we would welcome a close association between the departments of library science and the library in a manner to be determined by the universities, we are not in favour of the present practice of employing part-time teachers in the departments of library science drawn from the university libraries. This in our view is not conducive to efficiency...Therefore, it is not proper to continue any longer the practice of engaging the university library staff to be part-time teachers in the departments of Library Science".

The trend over the past two decades or so has been gradually to employ full-time teachers as well as full-time heads of the library schools. This aspect has been further discussed by the UGC Panel on Library and Information Science which recommended that 'A University Department of Library Science/Library and Information Science...should have adequate full-time teaching staff and also full-time head.'[14]

The total number of full-time teachers in library schools in the country is estimated at 250, with 30 Professors, 80 Readers and 140 Lecturers. These teachers are at par with their counterparts in other teaching departments with regard to their status, salaries, promotion, study leave, vacations and other facilities.

Qualifications and experience prescribed for the teaching positions are also generally at par with other teaching positions in the respective universities. A master's degree with a Ph.D. and teaching experience of 5-8 years is usually prescribed for teaching positions of Professors and Readers in Indian Universities. Librbrianship being a newly emerging discipline for study and research, and their being a substantial demand for teachers, it has till recently been quite difficult to recruit teachers with these qualifications and experience. The situation has however improved somewhat during the past 8-10 years but a good number of teaching positions still remain vacant because of the non-availability of suitable persons. Since the number of people with a Ph.D. degree in L&IS in the country is still limited, as a transitory measure a Ph.D. degree is not being always insisted upon for recruiting Professors and Readers in these library schools. Undoubtedly several Indian teachers who have had higher education in American or British universities have greatly helped in strengthening the teaching programmes in several Indian library schools.

It seems that for quite sometime it would still be difficult to recruit teachers who have background of both library science and of use of computers in libraries as such. Till such time such teachers are available, library schools would have to take assistance from people in computer science who would be required to develop proper understanding of the field of L&IS so as to teach in library schools.

According to the UGC Panel on Library and Information Science : A Library School conducting B.Lib. Sc./B.L.I Sc. course should have a minimum of 1 Professor, 1 Reader, and 3 Lecturers; and the one conducting both Bachelor's and Master's degree course should have 1 Professor, 2 Readers and 5 Lecturers. Library schools enrolling students for M.Phil. and Ph.D. programmes would calculate additional staff requirements by taking into account factors such as specialization of courses to be offered, interdisciplinary nature of research areas, etc. It has also been suggested by the UGC that the teacher-student ratio may be 1 : 10 for the Bachelor's level courses and 1 : 5 for the Master's level.[1]

Research Activity

India's original contributions in L & IS particularly in the voluminous writings of S.R. Ranganathan are already well recognized all over the world. Although the first Ph.D. degree in Library Science was awarded by the University of Delhi as early as 1957, yet the development of research activity in library schools has been rather slow.

Because of vast expansion in libraries and documentation centres in the country during the 1960's and 1970's, job opportunities greatly improved and persons with good academic and professional qualifications were able to find good employment without facing much competition. Research qualifications were generally not prescribed as an essential requirement for those jobs. Besides this, a few other factors for lack of research activity in library schools had been : (i) small size of teaching faculty in a library school, (ii) lack of research qualifications amongst L & IS faculty members, (iii) non-availability of financial support in the form of fellowships, research grants, etc. and (iv) lack of proper library facilities. The situation has however greatly changed during the past 8-10 years and it is estimated that there would now be around 120 persons in the country possessing M.Phil. or Ph.D. degree. About 80 candidates are at present registered for Ph.D. degree work in different library schools in the country. The need for developing research activities in library schools has been duly recognised and the keen interest being shown by the professionals promises vigorous activity during the years to come. An important factor responsible for this development is that research degree has now been prescribed as an essential requirement for senior positions in libraries and library schools in the country.

Some of us strongly feel that a few library schools with better resources and facilities should concentrate more on research programmes rather than on the usual training courses and as in other disciplines should strive to attain the status of centres of advanced studies under the UGC scheme for such centres. There are also recommendations made to the UGC and Government of India for establishing a centre for education and research at the national level.

Some of the areas which could fruitfully be taken up for research are : Subject Indexing; Information Systems and Services; Management of Libraries and Information Systems; Computers and Information Services; Library Buildings and Equipment; Oriental Librarianship, Public Libraries and Literacy, and User Studies.[16]

Student Characteristics

Most of the student joining the Bachelor's degree course, which is the first professional degree, are fresh from colleges or universities. It is always noticed that although students with better qualifications are now joining this course, (most of them having a good master's degree in a subject and some even with a Ph.D. degree) many of them do not possess such traits as aptitude for library work, a good general background, an interest in books and users, and a good personality, which are essential for being a competent professional librarian.

Some Problems and Issues

(i) While there is no doubt that these days students with better academic qualifications are admitted in the course, yet it is generally found that the number of academically sound students is quite small. This may perhaps be because of the overall gradual deterioration in the academic standards in colleges and universities in the country during the past 15-20 years of vast expansion in education at higher levels.

(ii) It is generally found that several of these students do not join the course with proper career planning or with a real motivation to work in the profession of L & IS. On priority basis, most of the bright students still prefer to join well accepted professions such as medicine, engineering, banking, accounting, etc. Those of them with good qualifications however who do join the course are those who expect, comparatively speaking, better employment opportunities in this profession.

(iii) How to attract good students, particularly with background in sciences or even in Social Sciences (those with background of subjects such as science and technology, or medicine are still rare) is an important question which has been receiving our careful attention in the country. Interestingly, the situation is of somewhat paradoxical nature because while the number of qualified personnel in L & IS has substantially increased during the past 15-20 years yet it is quite difficult to find suitable persons for senior positions particularly in university libraries and special libraries in the country.

Employment Opportunities

As mentioned earlier, the annual output of B.Lib. Sc./B.L.I.Sc. degree holders today is estimated to be about 2000, or master's degree holders about 350, and of Associateships is not more than 30. The number of students coming out with M.Phil. and Ph.D. Degrees is still small. Since there still is no system of manpower planning for the profession, this vast annual increase in the number of library science graduates has gradually led to a situation of unemployment or underemployment in the country.

The situation is becoming all the more difficult because of the fact that new library schools are established or Master's degree courses are added to the existing Bachelor's degree programme without making a survey of the existing facilities or needs in a State or region.

Also, unfortunately it is found that a new library school gets started without first ensuring the availability of adequate resources such as teaching staff, books, financial support, buildings, etc. It has been strongly felt and debated at different seminars, workshops, etc. that the present need in the profession is of consolidation and improvement of the existing facilities rather than expansion in the form of new library schools, courses, etc. in the country.

Accreditation

With the alarming increase in the number of library schools the quality of the training programmes has certainly got effected adversely. At present there is no system of accreditation as such of the library schools at the national level. The UGC is charged with the responsibility of ensuring and maintaining proper academic standards of higher education in the country but till now its role has generally been of a recommendatory nature rather than of an accrediting agency. The need for creating a proper system of accreditation is being felt in the profession quite earnestly but unfortunately a suitable mechanism for this purpose has yet to be devised. Accreditation system for subjects as medicine and law does exist in the country at present.

Certain standards with regard to different aspects such as teachers and their qualifications, library science library, non-teaching staff, physical facilities, etc. have been discussed and useful recommendations made by the Workshop (1973)[7] and Seminar (1977)[4] held at the University of Delhi as well as by the UGC Panel on Library and Information Science.[14] It has also been emphasised that library schools should conduct courses only at the postgraduate level, and that the undergraduate level courses should be under the purview of library associations, women's polytechnics or state libraries.

Place of Library Schools

Majority of the university library schools are already constituted as full-fledged teaching departments like other teaching departments in their respective universities. About 90% of these library schools have full-time teachers and heads and the others still function under the respective university librarian who has the additional responsibility for the school. The trend however is to separate the library schools from the administrative control of the university librarian which should have full-time teachers. As in countries such as the United States, Canada and the United Kingdom, this practice has been found to be more conducive to the overall development of library science education and research in the country. Library schools should however develop closer cooperation with different types of libraries which could serve as laboratories for practical training for library science students.

APPENDIX

Courses as Recommended by the UGC Panel on Library and Information Science (1982)

A. Bachelor of Library & Information Science (B.L.I.Sc.)

Objectives

1. A fundamental understanding of the historical development of libraries and library materials and the role of the library in the modern educational and social millieu;
2. To provide training in the principles, methods and techniques of modern library management; and
3. To provide broad acquiantance with information systems, networks and services.

cheme of Papers

1. Library and Society
2. Library Classification (Theory)
3. Library Classification (Practice)
4. Library Cataloguing and Subject Indexing (Theory)
5. Library Cataloguing and Subject Indexing (Practice)
6. Reference and Indformation Sources
7. Reference and Information Services
8. Library Management and Administration

Master of Library and Information Science (M.L.I.Sc.)

bjectives

1. To provide training in research methodology;
2. To develop knowledge in the latest techniques of information storage, transfer and retrieval;
3. To study at depth any one type of library or operation or service;
4. To provide proficiency in the design, development and application of advanced techniques in the management of diverse type of libraries.

cheme of Papers

1. Universe of Knowledge. Its development and structure.
2. One of the following : (i) Information Storage & Retreival (ii) Depth Classification.
3. Information Systems and Programmes
4. Information and literature source in any *one* of the following :

   (i) The Humanities
   (ii) Social Sciences
   (iii) Science
   (iv) Medical Science
   (v) Engineering & Technology
   (vi) Agricultural Sciences, etc.

5. *One* of the following :

   (i) Computer Application in Libraries/Information Centres.
   (ii) Comparative Librarianship
   (iii) Library and Information Science Education

6. Operations Research and Systems Analysis.
7. *One* of the following :

   (i) Public Library System
   (ii) Academic Library System
   (iii) Research and Technical Library System
   (iv) Agriculture Library System
   (v) Medical Library System
   (vi) Engineering & Technological Library System

8. Project & Dissertation.

Note : In case the Semester pattern is followed for B.Lib. Sc. and M.L.I.Sc. examinations, the above scheme of papers may be divided accordingly for each semester.

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Social Justification of a University

Noted Economist Prof. Bhabatosh Datta delivered the Convocation Address at the Seventh Convocation of the University of Kalyani. Answering his own poser : How does a university justify its existence and therefore social support ? he said, "For effective social justification, a university has to cast its eyes downwards and also laterally. This may mean many things in concrete terms. For example, a university with a small number of affiliated colleges located in the neighbourhood can integrate the colleges into the system in an 'essential' manner, going much beyond regulation, control and inspection. The college teachers may be invited to the university to participate in all activities, including teaching and research. The university teachers have in that case to regard the colleges as an extension of their field of work. They should see what is being done in the colleges, from which their supplies of postgraduate students will come. And the colleges should be enabled to feel that they are not under the university but are integral parts of it." Excerpts

Convocation

The question that has to be seriously considered and answered is : How does a university justify its existence and therefore social support ?

I am not referring here to the standard catalogue of the functions of a university—enrolling students, appointing high grade teachers, prescribing and pursuing courses of study, examining the students and granting them degrees, providing research facilities etc. These are all important and indispensable, but a university has to go beyond all this. It is not unlikely that in the not very distant future, electronic developments will be revolutionising teaching and evaluation and then the question of the raison d' etre of a university will assume deeper import than it does now.

A small university has its disadvantages and limitations, but it has got some special advantages also. The teachers and students are in close contract with each other inside and outside the classrooms. The different departments can interact with each other and facilitate multi-disciplinary studies. If there are affiliated colleges, they can be brought into close and continuous touch with the parent body. And, a small local university can come out of its ivory tower and spread its influence on the wider public. I would hold that the most important social task of a university is its involvement in the process of cultural transformation of the area served by it. This role was ably performed by the old European universities like Padua, Heidelberg, Uppsala, Oxford and Cambridge and by our ancient universities of Takshasila and Nalanda.

In their outer form the old universities were of the type of cloisters, but new learning, new thinking, new ideas emerged from them and became integral parts of the cultural wealth of the people. The old European universities trained their novices in Religion, Law and Medicine and thus created a body of persons who would serve the people. It is unfortunate that some of our universities have developed into cloisters, though not deriding the luxuries that modern life can offer, and have, though rigid inbreeding, lost touch with the people outside the inner circle. A university loses its social role if it only creates an elite group to which others are not admitted.

For effective social justification, a university has to cast its eyes downwards and also laterally. This may mean many things in concrete terms. For example, a university with a small number of affiliated colleges located in the neighbourhood can integrate the colleges into the system in an "essential" manner, going much beyond regulation, control and inspection. The college teachers may be invited to the university to participate in all activities, including teaching and research. The university teachers have in that case to regard the colleges as an extension of their field of work. They should see what is being done in the colleges, from which their supplies of postgraduate students will come. And the colleges should be enabled to feel that they are not under the university but are integral parts of it.

I ought to state that basically the whole idea of affiliated colleges —with their inferior status—is wrong, Colleges should develop with a large measure of autonomy and also collaborate with one another in a noble partnership. But at the same time we have to accept the fact that this ideal cannot be reached in our present-day conditions. Some orderliness is therefore necessary. I am suggesting that this orderliness should not appear to be imposed from the top by people who assume a superior position.

The second line of action for a university, particularly one like Kalyani, is to help in the cultural transformation of the area it serves by assimilating within its system the non-university centres of learning. Professor Hiren Mukherjee spoke at your fifth convocation about bringing within your fold the traditional centres of learning like Nabadwip, Krishnagar or Bhattapalli. It is surprising that Kalyani, which is situated in the heartland of Sanskritic learning and old Bengali literature does not have facilities for study and research in Sanskrit language and literature or in the special kind of philosophy and logic that had developed in this area. Kalyani could also have been an important centre for the study of regional or local history.

Speaking of history, I may mention the excellent work done by Dr. Ranjan Kumar Gupta on the economic life of the Birbhum district between 1770 and 1857. As a teacher in the district town college, he could establish contact with the local authorities in charge of the district records held in the Collectorate Archives and scan the material with patient care. If this could be done by a college teacher, unassisted by any institution, there is no reason why the University of Kalyani should not be able to promote the writing of a thorough history of the Nadia district on the basis of the district records.

The district of Nadia has also a rich tradition of folk songs festivals artistic craftmanship nurtused by religious and other groups some of them of the type that a modern historian would describe as subaltern". Some of our well-known litterateurs have written of the local folk culture. There have also been college teachers like Sudhir Chakravarti who have given perceptive accounts based on their personal experience. We emphasize the role of the subaltern groups in our political and economic history. A regional university like Kalyani can and should sponsor extensive work on our subaltern culture. I am happy to learn that a fullfledged department of Folklore has already started functioning.

I have written extensively on the problems of higher education in India and in West Bengal. I have to admit that after long years of involvement, I often feel frustrated now. I do not think that any one individual or even a group can necessarily point out what the right directions for change should be. What grieves me is that the decision-makers are entirely indifferent to the ideas about change. I would have been satisfied if the suggestions made from time to time were rejected outright, after a thorough scrutiny and debate. The need for even the required debate is not recognised.

I am not therefore addressing the official policy-makers. My appeal is direct to the universities and colleges, to the teachers research workers and students to see how much they can do for the advancement of learning for the cultivation of new fields and for what I have called cultural assimilation integration and transformation. There is often a tendency to branch out towards the latest trends, but much more important is the establishment of a firm base in the fundamental areas in science, humanities and culture.

Before I close I appeal to the graduates of the University to remember the often-forgotten fact that the getting of a degree is not the terminal point in the educational process. In its basic logic, graduation is a gradual process. Real education begins where routine education stops. Those who get degrees have an obligation to themselves to keep up the learning process and also to the society which has borne the sacrifices necessary to give them a valuable start. I also hope that the students of the University will never forget their obligation to their intellectual mother. In the not-too-distant futur the graduates of today will be the leaders of tomorrow—in academic pursuits, in administration, and in the process of social and economic development. The university should be able to say that its students have contributed richly to social progress in every direction. Mutual pride is the basis of the relation between a university and its students. I hope that this pride will never fade ☐

Interesting and Informative

Shyamji Dubey*

Bharti (H L N): An Introduction to Indian textual criticism and modern book publishing, 1988. Mysore, Central Institute of Indian Languages. xxvi, 236 p. Rs. 32.00 (Paperback)

The author has done well in writing a book on Indian Textual Criticism and Modern Book Publishing. Not many books are available on Indian textual criticism though quite a few are available on modern publishing.

The book is divided into 2 parts. Part I deals with Indian textual criticism. Textual Criticism has been defined as "the skilled and methodical exercise of the human intellect on the settlement of text". The author gives a bird's eye view of the origin of writing and the preparation of manuscripts from 4th century BC onwards. For preparing multiple copies, services of scribes were requisitioned. The scribes consciously or unconsciously made some changes in the originals by substituting a word or sentence. Thus copies were prepared at different times and places, so it became very difficult to establish the authenticity of originals.

The author recommends that all available manuscripts on a given subject and with a common title be collected or located. These may be classified, catalogued, and the manuscripts be preserved. This may be done in original form or on microfilm. The author does not mention microfische.

It is suggested that a descriptive catalogue of manuscripts available be prepared. It should provide title, subject, size, number of lines on a page and words in a line, name or names of the authors, script and the material on which written.

The author provides the guidelines for editing and cautions about wrong letters, sentences and some portion remaining unedited, which are called 'corruption'. This may be due to oversight, psychological impact, accident or deliberate. This may be avoided. For preparing the final copy for publication, the editor should provide the description of the material used, list of manuscripts on the subject consulted to authenticate the original text.

The editor is supposed to have the knowledge of the language, subject of the manuscript and the material on which these have been prepared.

The National Institute of Languages has prepared a catalogue of manuscripts in scientific subjects covering the period 8th century AD to 20th century AD.

The second part of the book deals with book publishing. It gives a brief history of publishing and printing and lists the problems faced by the industry. The author suggests that arrangement for training of publishers should be made in developing countries. Manuscripts received for publication should be evaluated and edited. Further he makes a distinction between general publishing and educational publishing. Government and private agencies engaged in publication are listed.

The need for protection of intellectual creations of authors as covered by copyright law is mentioned but wherever different countries have not accepted the International Copyright Convention, the authors suffer. No examples of such intellectual piracy are mentioned.

The author mentions the importance in designing books, sales promotion and distribution without which the publishing industry may not survive. Further he stresses the role of a few promotion agencies like Publication Division and National Book Trust.

Three Appendices have been provided at the end. Out of these the first dealing with "checklist for editing manuscripts" and the second entitled "glossary of technical terms are quite useful." The third is the Bibliography and References.

The author has not provided any footnotes or index to the book, without which the book remains incomplete. But on the whole it is an interesting and informative reading material and can be safely recommended for people in this profession.

□

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Women Vice-Chancellors' Conference

The Commonwealth of Learning based in Vancouver, Canada organised, in association with the Indira Gandhi National Open University, the Commonwealth Women Vice-Chancellors' Conference from 14th to 17th May, 1990 at New Delhi. A group of high-powered strategically placed women from Australia, Canada, New Zealand, Nigeria, Pakistan, UK and India focussed their attention on "Bringing Women into the Mainstream of Development", the main theme of the conference. India had the unique distinction of having the maximum number of women Vice-Chancellors at the Conference.

The Conference was inaugurated by Shri Chimanbhai Mehta, Minister of State in the Ministry of Human Resource Development. He set the agenda for the Conference by suggesting various ways and means through which the lot of women could be improved through Distance Education. The two keynote addresses which set the tone of the Conference were given by Ms. Lucille Mair, the Minister of State for Foreign Affairs, Trade and Industries, Jamaica and Prof. Yashpal, Chairman, University Grants Commission of India.

Ms. Lucille Mair very lucidly brought out how women were usually the 'chief victims of every society', how most of the 'donkey-work remained for women to shoulder' and how 'women had no access to positions of power and responsibility'. "If we want to humanise education", she said, "let us activate human potential to bring about positive changes in the society". Prof. Yashpal raised crucial issues in respect of attitude and preparedness of the conventional universities with regard to both the use and utility of Distance Education for the upliftment of women on one hand and the credibility of distance education as an effective mode of education, on the other.

The Conference had a flexible structure featuring keynote addresses, plenary sessions and group discussions so as to make it a thinking Conference where the participants could feel unfettered and spontaneous in bringing their reactions together. In the four days of intense discussion and debates, several key issues of concern to women in general and women educators in particular emerged. It was suggested that strategies be devised to create need for and means of empowering women to participate in decision making processes to rectify the imbalance. Educational programmes of specific interest and relevance to women should be prepared considering their role outside and inside the home.

The participants strongly opined that distance education could contribute vastly to the upliftment and empowerment of women. Specific efforts be made by providing basic and functional literacy courses. Knowledge of legal rights, health and hygiene, specific training in business, marketing etc. Distance education should provide adequate support system for women and encourage women to enter into the workforce. Special programmes for the deprived women living in rural and remote areas should be developed. If women cannot be approached through the print medium, other media should be explored.

At the end of the Conference, Dr. James A. Maraj, President of the Commonwealth of Learning hoped that the participants of the Conference would themselves initiate activities in their countries in the direction of fulfilling the objectives of the Conference. He assured the delegates that the deliberations of the Conference would be presented before the Ministers concerned with the women's affairs for consideration and implementation at the Commonwealth Ministerial meeting to be held at Ottawa, Canada in October, 1990.

Strategies of Development of North East

A two-day national seminar on Strategy of Development of North Eastern Region with special reference to Assam was held at the Gauhati University on 5th and 6th May, 1990. Jointly organized by the Gauhati University, Tamulpur Anchalik Gramdan Sangha and North Eastern Regional Centre of the National Institute of Rural Development, the seminar was inaugurated by Professor D.P. Barooah, Vice-Chancellor, Gauhati University. Prof. Barooah recalled the contribution of Gauhati University in the educational, political and economic advancement of the region. He was glad that Gauhati University could host this National Seminar on Development Strategy in which a number of eminent academicians and policy makers of national repute were participating. In the course of his inaugural address he stressed the immediate need for containing the recurring floods of Assam because whatever development programmes under the plans were undertaken had been washed away by the recurring floods. He also emphasized the need for strengthening the surface communications in the region.

Acharya Ramamurti, Adviser, Planning Commission, and the Chairman of the Panel for the review of the Education Policy while addressing the inaugural session emphasized that his role as the Adviser of the Planning Commission would be to advise for prosperity and not for poverty. He stated that the three 'Ds' —Defence, Development and Democracy were the essence of entire planning philosophy. He stressed strengthening of the Institutions at the village and block level for development of the rural areas and emphasized the need of people's participation in all developmental programmes.

Sri J.N. Das in his presidential remarks said that the Panchayati Raj system should play a significant role in the process of rural development. He observed that decentralisation of planning process and assurance of people's participation in planning exercises were talked about even during the sixties, but regretted that they were not given the proper emphasis at that time. He was of the view that while formulating planned strategies adequate care should be taken of the agencies engaged in the execution of plans. He lauded the role of the voluntary agencies engaged in the programme of rural development.

Sri Ashok Saikia, Secretary, Education, Government of Assam, who presided over the valedictory function, hoped that the seminar recommendations would provide feedback to the planners and policy makers to help them adopt effective strategies for development. In his valedictory address Acharya Ramamurti, highlighted the necessity of preparing a scheme of reforms to take care of the economic, social and political strategies for development. He touched upon a number of important issues of development relevant to the region in general and Assam in particular.

Over fifteen papers were presented at the seminar which was attended by over fifty distinguished participants from within and outside the region.

Entrepreneurship Development Programme

The Centre of Energy Studies and Entrepreneurship Development Cell of the IIT, Delhi in collaboration with Indian Renewable Energy Development Agency (Government of India Enterprise) is organising a six-week Entrepreneur-ship Development Programme in New and Renewable Energy Sources (NRES) from June 1-July 15, 1990. Shri Arif Mohd. Khan, Honourable Minister of Energy, Government of India, inaugurated the Programme.

It is proposed to develop and implement Entrepreneurship Development Programme with the objective of developing and assisting new and professional entrepreneurs who could set up small business ventures in the area of New and Renewable Sources of Energy. This will also accelerate the commercialisation of New and Renewable Sources of Energy technologies in the country and provide training of trainers and programme coordinators for the Entrepreneurship Development Programmes in NRES.

During the six-week programme, 90 lectures each of one hour duration, 30 lab. classes each of 2 hours duration, and 15 project profiles are proposed to be undertaken. All the lectures, lab. classes and project profiles as also the fabrication work will be delivered and supervised by experienced academicians, scientists, successful entrepreneurs, Government officials and planners.

More than 60 participants from different parts of India are participating in the Programme.

Training Programmes in Educational Administration

Keeping in view the enormous increase in administrative complexities and ever changing concepts of educational administration, the Centre for Work Study in Educational Administration of the Panjab University has been organising training programmes and workshops for University officers and officials of various universities and educational institutions in India. The primary objective is to develop human resources and equip the functionaries with modern management techniques so that they are competent and capable of meeting the new challenges to university administration.

The Centre proposes to organise various training programmes during the year 1990–91. These include: (1) Training Programme for Personal Assistants and Sr. Stenographers; (2) Improving Office Skills; (3) Computers in Educational Administration; (4) Records Management & Filing System; (5) Management Development Programme; (6) Management of Disciplinary Proceedings; (7) Management of Accounts; (8) Management of Academic Libraries; (9) Effective Office Support; (10) Innovative Approaches to Productivity. Improvement in University Administration; (11) 6-week Basic Course in Administrative Analysis and Improvement; (12) 13-week Advanced Course in Administrative Analysis and Improvement; and (13) Effective Office Supervision

Further details can be had from Shri Shital Parkash, Hony. Director, Centre for Work Study in Educational Administration, Panjab University, Chandigarh.

Drstikona Launches Bilingual Journal

DRSTIKONA, an organization of writers and reviewers launched the first number of its annual research journal *Drstikona* at Fatehgarh Club, Fatehgarh (UP). The multi-disciplinary bilingual journal aims at highlightling researches done in the field of humanities and social sciences. It brings out discussions and debates on the published works as well as creative writings. Releasing the number, Mr. V.N. Garg, I.A.S. stressed the need of focussing the attention of academics on the relevant issues of the day. Mr. Sunderdas V. Gohrani, the editor, expressed the hope that the journal would be able to do a great service in the field of education and research. It encompassed, he said, not only the works of teachers and scholars of different universities but also those of non-academic writers. Since 1985 when it came into being, Drstikona has been discussing the theses of scholars and published works of eminent writers in its monthly meetings.

A collection of poems *Yes, I am a Jealous Lover*, by Dr. Man Mohan Lal was also released on the occasion. Mr. Garg suggested some parallels to Tagore's *Gitanjali* in this collection. The audience felt exhilarated when Dr. Lal recited two of his ghazals in English.

Course in Structural Engg. & Construction Management

The Thangal Kunju Musaliar College Of Engineering, Quilon (Kerala) has started a new Postgraduate course in Structural Engineering and Construction Management under the Department of Civil Engineering from the current academic session with an intake of 5 students.

News from Agril. Varsities

Workshop on Transfer of Technology Projects

Dr. Khem Singh Gill, Vice-Chancellor of the Punjab Agricultural University (PAU) recently inaugurated a two-day Workshop of ICAR Transfer of Technology Projects at Ludhiana. In his address Dr. Gill said that there should be no accumulation of technology and the technology developed at the agricultural universities should be immediately transferred to the farmers to improve their productivity. He said that PAU through its Farm Advisory Service Network endeavours to educate the farmers about the latest farm technology but still there was a need to accelerate the process. Dr. Gill disclosed that Punjab had achieved all time record production of cotton on account of the integrated pest control management suggested by the PAU. In order to remove parity in crop yield the state has been divided into six agro-climatic zones and research was being conducted on locations specific basis. Dr. Gill said that there should be close linkages between various agencies working for rural development. Rural youth should also be associated with all developmental activities, he added.

Dr. P.N. Mathur, Assistant Director General (Extension Education) of the Indian Council of Agricultural Research, said that Punjab had two Krishi Vigyan Kendras at Gurdaspur and Ferozepur. He disclosed that four new Krishi Vigyan Kendras have been sanctioned by the Union Government for Punjab.

Dr. Subhash Chander, Zonal Coordinator of ICAR at the PAU, said that it was the first workshop which was being held at the PAU and similar workshops will be held at HPAU, Palampur, HAU, Hissar, and YSPUFH, Solan during this year to work out an action plan for the next year.

Sorghum Varieties for Industrial Purpose

The Tamil Nadu Agricultural University (TNAU) has launched a new plan scheme entitled "Development of sorghum varieties for various industrial purposes". It will be implemented at University Research Centre, Vellore and function under the technical control of Director, School of Genetics, TNAU, Coimbatore.

There is a deficit of fuels and/or ethyl alcohol for industrial use. Technology is available for extraction of the sugar from sweet sorghum biomass and for its transformation into alcohol. This becomes a profitable enterprise with valuable by products viz: grain, bagasse and silage.

The grain has the same value as any other grain and may be utilised as a food or feed. The bagasse and silage may be transferred into biogas and biofertilisers. Industrial starch is important to make products like adhesive, core binder for well drilling and in ore refining. As there is good potential for uses such as these, evolving varieties with grains that have good dry milling characteristics will be aimed at by evaluating the existing waxy endosperm varieties and hybrids for industrial uses and high yielding types

National Seminar on Farm Journalism

A National Seminar on Farm Journalism was recently held at the Tamil Nadu Agricultural University. Presiding over the inaugural function, Dr. S. Jayaraj, Vice-Chancellor of TNAU called upon the participants to bestow more attention in print media enabling them to reach every farm and home facilitating the transfer of farm technology. "Journalism is the key to communication and Journalists are the eyes and ears of the social system" he remarked while emphasising the need for proper organisation and presentation of information in the form in which it is appropriately utilised by the readers. The Vice-Chancellor wanted the participant journalists to adequately create awareness and critical thinking among the readers.

Outlining the spatial distribution of agricultural officers, Dr. Jayaraj said that in Tamil Nadu, 2300 agricultural officers were catering to 61 lakh farm families, the proportion being 1:2650, whereas in Japan and USA it was 1:600 and 1:20 respectively. Under such circumstances, the feasible alternative was to enrich the capabilities of farm graduates through farm journalism and should be taught on skill in gathering, synthesising and disseminating news for farmers. He said that the newly created unit of Agricultural Journalism will promote the educational, research and training programmes in the field.

Dr. Rajammal P. Devadoss, Vice-Chancellor of Avinashilingam Institute for Home Science and Higher Education for Women, who inaugurated the seminar, stressed the critical role of extension workers in the diffusion of farm technology through print media and latest gadgets of communication. Lauding TNAU for its appreciable success in communication, she advocated "Integrated Communication System" for effective transfer of innovations. She wanted the mass literacy movement to be taken by the educational institutions on war footing.

Dr. Rajammal P. Devadoss also released the first issue of the "Tamil Nadu Journal of Extension Education".

News from UGC

INSAT-1B Programme of UGC

Between 16th June to 23rd June, 1990 the following schedule of telecast on higher education through INSAT -1B under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission
6.00 a.m. to 7.00 a.m.

16.6.90

"A Manipur University Profile"

"Never Say Die"

"European Modal Music"

17.6.90

No Telecast

18.6.90

"Little knowledge is a Dangerous Thing"

"Management Functions and Behaviour"—Leadership Styles"

"Improved Seeds, Better Harvests"

19.6.90

"Plasma Emission Spectroscopy & Metallic Pollutants – I"

"Values in Education – II: The Practice"

"Red Eye"

20.6.90

"Images of Women in History–I"

"Appropriate Technology – Tree as Antenna"

"Plants in Our Neighbourhood—VIII"

21.6.90

"Computer Assisted Learning"

"Scenic America: Steamboat Spring"

"A Brief History of Tamil Literature"

22.6.90

"Recent Trends in Astronomy & Astrophysics"

"Defence Mechanism – VII"

"Effects of Environmental Pollutants on Brain Functions"

23.6.90

"Science of Cooking Eggs"

"Writing a Resume"

"Name of the Game is Basket Ball"

2nd Transmission
12.00 noon to 1.00 p.m.

16.6.90

"Clay Work"

"Alcoholism"

"What is Cerebral Palsy"

17.6.90

No Telecast

18.6.90

"Hour USA: OMNI – The New Frontier: Fusion, Distant Galaxies"

"Keynesian Economics"

"Significance of Ocean Survey in Fisheries"

19.6.90

"Chemical Kinetics – V"

"Basic Camera Controls"

"Worldnet Medicom – 86 – II"

20.6.90

"Rural Sanitation"

"Early Andhra Coins"

"Taming the Double Helix"

21.6.90

"Electrical Circuits – II"

"Portrayal of a People"

"Paninian Linguistics – I"

22.6.90

"Apollo – 17 – On the Shoulders of Giants"

"Defence Mechanism"

"Let Us Save Ourselves: Pollution – II"

23.6.90

"An Eye Opener: Prevailing Over a Handicap"

"Drug Addiction and Its Treatment"

"Sailing in the Air – Gliding"

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857–1970 and 1970–75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertion is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

- The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in the AIU Library during May, 1990.

EDUCATIONAL PHILOSOPHY

Allman, Paula and Wallis, John. Praxis: Implication for 'Really' radical education. *Studies Edn Adults* 22(1), 1990, 14-30.

Altbach, Philip G. Higher education and the distribution of knowledge: International perspectives. *J Edn Social Change 1(1), 1987, 1-24.*

Debeauvais, Michel. The international dimension of the debate on the nature of the educational sciences: A comparative approach. Prospects 19(3), 1989, 381-88.

EDUCATIONAL SOCIOLOGY

Atal, Yogesh. Transferring knowledge: Policy relevant issues. *J Edn & Social Change* 1(1), 1987, 100-112.

Premi, Kusum K. Education for equality: Universal primary education in remote and isolated areas. *New Frontiers Edn* 20(1), 1990, 34-41.

Radhakrishnan, P. Reservations in theory and practice. *Bulletin Madras Development Seminar Series* 20(4), 1990, 191-213.

EDUCATIONAL PLANNING

Amrik Singh. Redeeming higher education. *J Edn & Social Change* 1(1), 1987, 47-72.

Smith, Phillip. Strategic developments in higher education. *Studies Edn Adults* 22(1), 1990, 94-106.

EDUCATIONAL ADMINISTRATION

Ewell, Peter T. Institutional characteristics and faculty/administrator perceptions of outcomes: An exploratory analysis. *Res Hr Edn* 30(2), 1989, 113-36.

Raman, A. Responsibilities of an autonomous college. *New Frontiers Edn* 20(1), 1990, 42-5.

Riddell, Abby Rubin. An alternative approach to the study of school effectiveness in Third World countries. *Comp Edn Rev* 33(4), 1989, 481-97.

Udgaonkar, B.M. Future of our university system. *J Edn & Social Change* 1(1), 1987, 73-99.

CURRICULUM

Sutton, Peter. Environmental Education: What can we teach? *Convergence* 22(4), 1989, 5-12.

TEACHERS & TEACHING

Beteille, Andre. A career in a declining profession. *Minerva* 28(1), 1990, 1-20.

Nnabuo, P. Job satisfaction and university lecturers. *New Frontiers Edn* 20(1), 1990, 1-9.

EDUCATIONAL RESEARCH

Husen, Torsten. Educational research at the crossroads?: An exercise in self-criticism. *Prospects* 19(3), 1989, 351-60.

Rais Ahmed. University research: What is the status? *2001*, 24(4), 1990, 60-62.

EDUCATIONAL TECHNOLOGY

Hawkridge, David. Computers in Third World schools: The example of China. *British J Ednl Tech* 21(1), 1990, 4-20.

Prasad, S.N. and Shukla, Suman. Educational technology for human dignity and peace. *J Indian Edn* 14(4), 1988, 20-5.

EDUCATIONAL EVALUATION

Cook, Stuart S. Improving the quality of student ratings of instruction: A look at two strategies. *Res Hr Edn* 30(1), 1989, 31-45.

Jones, John. Students' ratings of teacher personality and teaching competence. *Hr Edn* 18(5), 1989, 551-58.

ECONOMICS OF EDUCATION

Adiseshiah, Malcolm S. Political economy of planning and administration of education. *J Edn & Social Change* 1(1), 1987, 35-46.

Borsch-Supan, Axel. Education and its double-edged impact on mobility. *Eco Edn Rev* 9(1), 1990, 39-53.

Mathew, E.T. Financing college education in the private sector in Kerala. *Eco Pol Weekly* 25(17), 1990, 943-54.

Montgomery, James R and Snyder, Julie K. Costing a library: A generic approach. *Res Hr Edn* 30(1), 1989, 47-87.

Suja Kumar, P.K. Productivity in economy and education: An analogical study. *J Indian Edn* 14(4), 1988, 12-9.

Taylor, Peter. The impact of institutions of higher education or local income and employment: The case of Bristol Polytechnic. *Hr Edn Rev* 22(2), 1990, 39-58.

Zeenat Begam. Facility utilisation in university sector. *Yojana* 33(20), 1989, 29-31.

SCIENCE EDUCATION

Kulkarni, V.G. Role of language in science education. *J Edn & Social Change* 1(1), 1987, 113-31.

PHYSICAL EDUCATION & SPORTS

Prakash, Padma. Women and sports: Extending limits to physical expression. *Eco Pol Weekly* 25(17), 1990, WS-19-29.

VOCATIONAL EDUCATION

Bhargava, O.P. and others. Towards reorientation of medical education: A jipmer experience. *J Edn & Social Change* 1(2), 1987, 6-20.

Burt, Gordon. Ideology in management education. *British J Ednl Tech* 21(2), 1990, 144-45.

ADULT EDUCATION

Aikara, Jacob. Adult education: Policy and performance. *J Edn & Social Change* 1(4), 1988, 108-21.

Ambasht, N.K. Non-formal education in India. *J Indian Edn* 14(4), 1988, 1-11.

DISTANCE EDUCATION

Kunnunkal, T.V. Open School: An alternative to formal school. *J Edn & Social Change* 1(2), 1987, 43-7.

Liddament, Terry. Interdisciplinary study in the arts and the role of face-to-face teaching. *Open Learning* 5(1), 1990, 56-60.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Obanya, Pai. Going beyond the educational reform document. *Prospects* 19(3), 1989, 333-47.

Nayana Tara, S. Issues in Indian higher education. *Yojana* 33(20), 1989, 22-5.

BIOGRAPHICAL PROFILE

Ivic, Ivan. Lev S. Vygotsky. *Prospects* 19(3), 1989, 427-36.

INSTITUTIONAL PROFILE

De Souza, Heitor Gurgulino. The United Nations University: A network with a global mission. *Prospects* 19(3), 1989, 313-31.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities.

BIOLOGICAL SCIENCES

Forensic Sciences

1. Batra, Neelam. *Forensic characterisation of polymeric materials using IR spectrophotometer spectrochemical analysis and scanning microscope techniques.* Punjabi. Dr. Vijay K. Sharma, Department of Chemistry, Punjabi University, Patiala and Dr. S.R. Singh, Senior Scientific Officer, Central Forensic Science Laboratory, Lodhi Road, New Delhi.

Environmental Sciences

1. Krishna Mohan, Ravuri. *Systematic studies on the flora of Prakasam District, Andhra Pradesh, India.* Andhra.

Biology

1. Murugesan, A.G. *Toxicity of textile mill effluent to an air-breathing fish.* Madurai.

2. Hemambika, M. *Studies on the digestive enzymes of the Indian white prawn, Penaeus indicus H. Milne Edwards.* CUST. Dr. R. Paul Raj, Senior Scientist, Marine Research Centre, Central Marine Fisheries Research Institute, Madras.

3. Laleriya, Malini. *Role of free-radicals in luteal steroidogenesis and implantation.* Devi Ahilya. Dr. Sudhakar Bharati, Department of Life Sciences, Devi Ahilya Vishwavidyalaya, Indore.

Biochemistry

1. Arora, Abha. *Biochemical profile of diabetes associated with renal and hepatic disorders.* Devi Ahilya. Dr. R. Vijayvargiya, T Chouthram Hospital, Indore.

2. Chattopadhyay, Arabinda. *Biomonitoring of water bodies with particular reference to chemical pollution in fishes.* Calcutta.

3. De, Kathakali, *Glutathione and its related enzymes in the human fetal systems.* Calcutta.

4. Kundu, Amitabha. *Studies on the late promoter of bacteriophage lambda and to explore the possibility of its use in the construction of an expression vector.* Calcutta.

5. Mahajan, Ritu. *Studies on PPi and ATP dependent phosphofructokinases from developing grains of wheat. Triticum aestivum L.* HAU.

6. Maheshwari, Vijay. *Studies on the mechanism of activation of enzymes of photosynthetic carbon dioxide fixation by light.* Devi Ahilya. Dr. R. Bhardwaj, Reader and Head, Department of Biochemistry, Vigyan Bhavan, Khandva Road, Indore.

7. Mukhopadhyay, Sunil. *Biochemical studies on human blood corpuscles under in vitro lanthanum and mercury treated conditions.* Calcutta.

8. Sircar, Kakoli Shyamal. *Certain insight into the pathogenicity of polymorphonuclear leukocytes in diabetes mellitus.* Nagpur. Dr. Nirmalendu Nath, Department of Biochemistry, Nagpur University, Nagpur.

Microbiology

1. Naidu, Jaishree. *Studies on superficial mycosis with special reference to those caused by Hendersonula toruloides and Scytalidium hyalinum.* Durgawati. Dr. S.M. Singh, Department of Bioscience, Rani Durgawati Vishwavidyalaya, Jabalpur.

Botany

1. Basak, Priyabrata. *Studies on the mushrooms of 24 Parganas*

District, West Bengal. Calcutta.

2. Beena Kumari. *Studies on nitrogen metabolism under salt stress in linseed. Linum usitatissimum L.* Rohilkhand. Dr. P. Kumar, Hindu College, Moradabad.

3. Bhajbhuje, Machhindra Nagorao. *Investigations on the seed mycoflora associated with vegetable seeds from Vidarbha region* Nagpur. Dr. R.P. Thakre, Department of Botany, Nagpur University, Nagpur.

4. Bheema Reddy, K. *Induced genetic variability in Vigna unquiculata (L) Walp*. Osmania.

5. Gautam, Virendra Kumar. *In vitro morphogenic studies in some angiosperms*. Delhi.

6. Jain, Ajay. *Storage of Crotalaria retusa pollen in organic solvents: Efficacy of the solvents and membrane changes in relation to viability.* Delhi.

7. Lakhanpaul, Suman. *Genome organisation and evolution in Vigna savi*. Delhi.

8. Lokesha, S. *In vitro studies on the effect of heavy metals on some fungi*. Bangalore. Dr. R.K. Somashekar, Department of Botany, Jnana Bharathi Campus, Bangalore University, Bangalore.

9. Misra, Manoj Rammohan. *Studies on salt tolerance of Sporobolus madraspatanus Bor: A forage halophytic grass*. Bhavnagar. Dr. A.J. Joshi, Reader, Department of Life Sciences, Bhavnagar University, Bhavnagar.

10. Mohanty, Narendra Nath *Investigation on the effect of elevated temperature in wheat primary leaves Characterisation of heat-induced alteration in chloroplast photochemical properties*. JNU. Prof. P. Mohanty, School of Life Sciences, Jawaharlal Nehru University, New Delhi.

11. Ram Kishore. *Study of heat shock proteins in pigeon pea, Cajanus cajan*. JNU. Dr. K.C. Upadhyaya, Assoc. Prof., School of Life Sciences, Jawaharlal Nehru University, New Delhi.

12. Ratnamala. *Seed-borne fungi of some solanaceous vegetables.* Osmania.

13. Sharma, Mata Dean. *Morpho-histological and experimental studies on little-leaf of egg plant. Solanum melongana L. associated with MLO.* Rajasthan. Dr. S. Misra, Department of Botany, University of Rajasthan, Jaipur.

14. Shukla, Hem Dutt. *Physiology of heavy metal resistance in the filamentous, nitrogen fixing cyanobacterium. Nostoc muscorum.* Durgawati. Prof. P.S. Bisen, H/X/123, E-7, Extension, Shahpura, Bhopal.

Agriculture

1. Arora, Ramesh *Effect of diflubenzuron on the growth, development and reproduction of the Heliothis armigera (Hubner) and Spodoptera litura Fabricius*. PAU.

2. Ghosh, Anupam. *Physiological studies on the effect of insecticide, fungicide and weedicide on rice and wheat in West Bengal*. Calcutta.

3. Kher, Samir. *Studies on screening techniques for resistance in cultivars of some Brassica species against the mustard aphid, Lipaphis erysimi (Kaltenbach)*. PAU.

4. Manchanda, Anirudh Kumar. *Studies on potato and radish gardening round the year under varied irrigation levels in Palam Valley of Himachal Pradesh*. HP Krishi. Dr. I.S. Chakor, Department of Agronomy and Agrometeorology, College of Agriculture, Palampur.

5. Mrig, Krishan Kumar. *Evaluation of some important management practices for control of major insect pests in sugarcane ratoon*. HAU.

6. Patra, Satyananda. *In vitro regeneration of forest trees*. YS Parmar. Dr. P.K. Khosla, Director of Extension Education, University of Horticulture and Forestry, Solan.

7. Satbir Singh. *Nutritional studies on hybrid tea rose cv. super star*. HAU.

8. Sood, Vinod Kumar. *Studies on gene action for yield and other traits in intervarietal crosses in bread wheat, Triticum aestivum (L.) em Thell*. HP Krishi. Dr. Tashi Dawa, Department of Plant Breeding and Genetics, College of Agriculture, Palampur

Zoology

1. Agarwal, Manjula. *Circannual and diurnal variation in the hypothalamo-hypophyseal gonad axis in the male Indian weaver bird, Ploceus philippinus: Effects of photoperiod and reproductive state* Delhi.

2. Gupta, Neerja. *A stereotaxic atlas for the forebrain nuclei and some experiments on the hypothalamic control of reproduction in the female catfish, Heteropneustes fossilis Bloch*. Delhi.

3. Jasial, Kiran. *Taxonomical and histochemical studies on nematodes of some carnivorous vertebrates from Himachal Pradesh*. HP.

4. Mukherjee, Debashis. *Studies on seasonal variations and the effects of cyproterone acetate and testosterone enanthate on the reproductive processes of male rhesus monkeys*. Delhi.

5. Padmaja, C. *Some aspects of chromium toxicity as function of pH in a fresh water fish*. Osmania.

6. Phaloura, Surinder Pal Singh. *Studies on the biology and larval chaetotaxy of some Indian Coccinellids (Coccinellidae: Coleoptera)*. Punjabi.

7. Rathod, Mohan Kaniram. *Biology, histomorphology, and biocontrol of citrus blackfly, Aleurocanthus sp. Ashby (Hemiptera: Ateryodiae)*. Nagpur. Dr. S.K. Raina, Department of Zoology, Nagpur University, Nagpur.

8. Roy, Anupam Kumar. *Survey of insects and biology and control of certain insects pests of the Balphakram Sanctuary, Meghalaya*. NEHU. Late Dr. M.K. Khare.

9. Sehgal, Neeta. *Induction, isolation, characterization, fate and biosynthesis of female-specific plasma proteins in the murrel, Channa punctatus Bloch*. Delhi.

10. Sharma, Kailash. *Histological and histochemical studies of digestive organs of certain teleost effected by pesticide and relative biochemical studies on liver*. Devi Ahilya. Dr. R.P. Singh, Department of Zoology, Holkar Science College, Indore.

11. Srivastava, Shree Ram. *Electron microscopic studies of the pineal in Indian freshwater fish* Rohilkhand. Dr. L.D. Chaturvedi, Hindu College, Moradabad.

12. Verma, Anita. *Studies on the bioavailability of bound residues of DDT and HCH to certain non-target animals and plants*. Delhi.

13. Verma, Deepak Kumar. *Effects of some organochlorine pesticides on the urinogenital organs of certain teleosts: Histological and gas chromatographic analysis*. Devi Ahilya. Dr. Ashok Sharma, Department of Zoology, Holkar Science College, Indore.

Medical Sciences

1. Agrawal, Vimal. *A neuropsychopharmacological study of anticancer agents of STM/LTM retrieval dynamics and cognitive information processing of leukemic and head and neck cancer patients*. Rajasthan. Prof. S.N. Sinha, P-1, Professor's Quarters, University Campus, Jaipur.

2. Debnath, Swapna. *Studies on DNA-RNA mucopolysaccharide glycogen and alkaline phosphatase of the stomach and intestine of different types of fishes under normal conditions and during stresses*. Calcutta.

3. Katariya, Devendra Kumar *Ayurvediya chikitsa vangmaya mein manvigyan ka vikasatmak evam vaigyanik adhyayan. Ravishankar. Dr. M.P. Pandey, Principal, Govt. Ayurvedic College, Raipur.*

4. Nigam, U.S. *Nasya kee karmukata ka prayogatmak vaigyanik adhyayan* Ravishankar. Dr. M.P. Pandey, Principal, Govt Ayurvedic College, Raipur.

5. Sahamandal, Sudhansukumar. *Experimental study of aerobic capacity in girl athletes*. Calcutta.

6. Sahu, Rashmi. *Immunology and host physiology during experimental clinostomiasis* Ravishankar. Prof. S M. Agrawal, Department

of Biosciences, Ravishankar University, Raipur.

7. Sohgoura, R.V. *Vatvyadhi mein keroliya panchkarma patrapotla ka chikitsakiya adhyayan*. Ravishankar. Dr. M.P. Pandey, Govt. Ayurvedic College, Raipur.

8. Swayam Rupa, D. *In vivo and in vitro effects of pesticides on chromosomal damage and sister-chromatid exchange in human peripheral blood lymphocytes*. Osmania.

9. Thakkur, Ramesh Datt. *Ayurvediya chikitsa vangmaya mein varnit pram evam pranyatan ka vaigyanik vivechnatmak adhyayan*. Ravishankar. Dr. M.P. Pandey, Principal, Govt. Ayurvedic College, Raipur.

Animal Husbandry

1. Makkar, Mahendra Singh. *Toxicological and biochemical studies of S-6-Chloro-2-3-dihydro-2-oxobenzoxazol-3-ylmethyl O, O-diethyl phosphorodithioate (phosalone) in Bubalus bubalis*. PAU.

2. Ved Bhushan. *Immunoglobulin profile of buffalo calves*. PAU.

EDUCATION NEWS INDEX

A list of select articles and editorials on Education from newspapers received in the AIU Library during May, 1990.

EDUCATIONAL PHILOSOPHY

Soni, Kiran. Universities and their functions. *The Hindu* 29.5.90.

EDUCATIONAL SOCIOLOGY

Akhileshwari, R. Black education in white country. *Deccan Herald* 20.5.90.

Jesudasan, I. Process of changing individualism to social concern. *The Hindu* 1.5.90.

Lokanadham, M.V. Role of parents in guiding children. *The Hindu* 15.5.90.

Moses, John. Parental indifference root cause of many troubles. *The Hindu* 1.5.90.

Narasimhan, Sakuntala. Should marriage end education? *Deccan Herald* 6.5.90.

OUR WOMEN of worth (Editorial). *The Tribune* 20.5.90.

Pink, Hyacinth and Nambiar, Nalini. From a decorative to an academic journal. *The Hindu* 8.5.90.

Shamsuddin. Use education for social change. *National Herald* 15.5.90.

WOMEN'S EDUCATION (Editorial). *Deccan Herald* 17.5.90.

EDUCATIONAL POLICY & PLANNING

Amrik Singh. Setting an agenda for education. *The Times of India* 5.5.90.

Bhattacharya, S. Education policy and the bureaucracy. *Indian Express* 2.5.90.

EDUCATION POLICY (Editorial). *Deccan Herald* 15.5.90.

Mohammad Ishaq. Symbol of lopsided educational policy. *Deccan Chronicle* 20.5.90.

Pandey, Kedar Nath. Reviewing education policy. *The Pioneer* 13.5.90.

REVIEWING EDUCATION (Editorial). *Indian Express* 17.5.90.

Sachindra. Still experimenting with education. *The Pioneer* 13.5.90.

EDUCATIONAL ADMINISTRATION

Baxi, Upendra. There can be no excuse for inaction in the university. *The Times of India* 19.5.1990.

CALENDAR FOR Varsities (Editorial). *Deccan Herald* 1.5.90.

Rathaiah, L and Bhaskara Rao, D. Residential colleges: Relevance in the present system. *The Hindu* 8.5.90.

CURRICULUM

Rajagopalan, T. Ethical values in school curriculum. *The Hindu* 26.5.90.

Saxena, A.B. A more effective EE programme. *The Hindu* 15.5.90.

LANGUAGE & LANGUAGE POLICY

A PRACTICAL Father (Editorial). *The Telegraph* 8.5.90.

Agarwal, Kavita. Importance of English. *Indian Express* 17.5.90.

Agrawal, Damodar. La Belle Hindi without English. *The Statesman* 26.5.90.

Amrik Singh. Attack reflects change. *The Hindustan Times* 17.5.90.

Ghosh, A.K. English: India's language of integration. *Patriot* 9.5.90.

Ghosh, A.K. Hindi-English controversy. *Amrita Bazar Patrika* 14.5.90.

Gopal, Ajit S. Why English link is a vital for India? *National Herald* 7.5.90.

Karlekar, Hiranmay. Tilting at English. *Indian Express* 10.5.90.

LANGUAGE AND unity (Editorial). *The Pioneer* 16.5.90.

Narendra, K. Trouble with English. *The Hindustan Times* 17.5.90.

Sadhu, Arun. Rhetoric apart, Mulayam is making a valid point. *Times of India* 21.5.90.

Sher Singh. Intransigence of the 'saviours' of English-II. *Patriot* 23.5.90.

Sumi Krishna. More languages should be used in the primary school. *The Times of India* 14.5.90.

Surendra Mohan. People's languages the best vehicle for progress. *The Pioneer* 17.5.90.

Venkat Narayan, S. Little point to furore over use of English. *Deccan Herald* 6.5.90.

SCIENCE EDUCATION

SCHOOL SCIENCE in the doldrum (Editorial). *The Hindu* 1.5.90.

TEACHERS & TEACHING

Amrik Singh. Teachers up in arms over wage disparity. *The Times of India* 19.5.90.

Bhattacharyya, P.C. The role of part-time college teachers. *Amrita Bazar Patrika* 1.5.90.

Raina, Badri. Revisions in the IITs violate the principle of parity. *The Times of India* 21.5.90.

EDUCATIONAL TECHNOLOGY

Gupte, V.G. Controversy about educational technology. *The Hindu* 29.5.90.

EDUCATIONAL EVALUATION

Shamsuddin. Need for reform in exam system. *Amrita Bazar Patrika* 8.5.90.

ECONOMICS OF EDUCATION

Narain, Vijay. Little return from the IITs. *Patriot* 1.5.90.

Sarma, Pabitra Kumar. Universities and their finances. *The Assam Tribune* 21.5.90.

STUDENTS & STUDENT ACTIVITIES

Sardesai, Rajdeep. Arts vs science vs commerce. *The Times of India* 26.5.90.

Vedantam, Vatsala. Making the right choices. *Deccan Herald* 20.5.90.

ADULT EDUCATION

Jara, Manolo B. Education for all will remain a dream. *The Pioneer* 3.5.90.

Jha, Shankar Kumar. Illiteracy in Bihar. *National Herald* 22.5.90.

Joshi, Navin Chandra. Deepening class bias in education. *Free Press Journal* 16.5.90.

Joshi, Navin Chandra. Meaningful education for the masses. *Amrita Bazar Patrika* 23.5.90.

Mathur, V.S. Literacy: The unanswered question. *The Tribune* 6.5.90.

Rana, R.S. To end illiteracy by 1995. *Patriot* 29.5.90.

Varma, Paripurnanand. U.N. Literacy year and India. *The Pioneer* 10.5.90.

ELEMENTARY & SECONDARY EDUCATION

Lalitha Ramesh. Extracurricular activities a deciding factor. *The Hindu* 15.5.90.

Lugani, R.S. School system should be made more skill-oriented. *The Times of India* 16.5.90.

Raghavan, G.N.S. Tinder-box of religious illiteracy. *Free Press Journal* 29.5.90.

Seshadri, Malini. Classroom competition: How much is too much? *Indian Express* 23.5.90.

INSTITUTIONAL PROFILE

Jain, H.M. What ails Allahabad University. *Amrita Bazar Patrika* 1.5.90.

BIOGRAPHICAL PROFILE

A TEACHER in the Indian mould (Editorial). *The Tribune* 18.5.90.

Baruah, Lily Mazinder. Bardoloi, an educationist first. *The Assam Tribune* 17.5.90.

Lal, Manjula. Still waters. *National Herald* 28.5.90,

Rao, G.S. Ram Reddy: A champion of distance education. *Patriot* 8.5.90.

CLASSIFIED ADVERTISEMENTS

BHAVNAGAR UNIVERSITY

Notification No. 2/90

Application are invited for the following posts in the prescribed forms which can be obtained from the university by sending non-refundable fees of Rs. 25/- (Twenty Five only) by Crossed Demand Draft favouring "Registrar, Bhavnagar University, Bhavnagar", or by depositing cash during 11.00 A.M. to 2.00 P.M. on working days. Applications should reach the undersigned on or before 16.7.90

Sl.No.	Name of the post	No. of posts	Pay-scale
(1)	Principal (For M.J. College of Commerce)	1	3700-5700 (After five years; 4500-7300)
(2)	Lecturer in English (Samaldas Arts College)	1	2nd Attempt. Reserved for SC/ST/PH 2200-4000
(3)	Reader in Economics	1	3700-5700
(4)	Computer Operator	2	1740-3000
(5)	Deputy Registrar	1	3000-4500
	Remarks: (Second attempt) (Reserved for ST candidates)		
(6)	Lecturer in Hindi (For Hindi Department)	1	2200-4000 Reserved for ST candidates (Second attempt)
(7)	Reader in Commerce (For Commerce Dept.)	1	3700-5700

Essential Qualifications:

For post No. 1

(1) Master degree with atleast 55% marks or its equivalent grade and good academic record.
"Good academic reocrd" means:
"Good academic record shall be an average record of Third year (final year) degree and master degree assessment which would atleast be 52.5% or M.Phil or Ph.D".

(2) Recognised as a P.G. Teacher.

(For post No. 2):

Qualifications:
(a) & (b) and good academic record as per Post No. 6.

For post No. 3:

Qualifications:
As per post No. 7.
Preference will be given for the following specialisation at Master's Degree. Agricultural Economics/Industrial Economics.

Definition of good academic record.

(i) A candidate holding a Ph.D. degree

should possess atleast a second class Master's degree

OR

(ii) A candidate without a Ph.D. degree should possess a high second class Master's degree and second class in the Bachelor's degree

OR

(iii) A candidate not possessing Ph.D. degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree

For post No. 4:

(1) Graduate with Diploma in Computer Science and Applications

OR

(2) Graduate with atleast Two years experience in operating.

For post No. 5:

Post Graduate degree from any faculty with Ten years administrative experience or graduate from any faculty with Twelve years administrative experience of higher education Institute.

Desirable: Law degree will be an added qualification. Knowledge and experience of working in SC/ST Cell will be preferred.

For post No. 6:

(a) A Doctor's degree or research work of an equally high standard **and**;

(b) Good academic record with at least 55% marks at Master's degree in a relevent subject from an Indian university or an equivalent degree from a Foreign university.

"Good academic record" means:

"Good academic record" shall be an average record of Third year (final year) degree and master degree assessment which would atleast be 52.5% or M.Phil or Ph.D.

For Post No. 7:

Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in; (i) research or (ii) innovation in teaching methods or (iii) production of teaching materials.

About five years' experience of teaching and/or research provided that atleast Three of these years as Lecturer or in an equivalent position.

Definition of good academic record.

(i) A candidate holding a Ph.D. degree should possess atleast a second class Master's degree

OR

(ii) A candidate without a Ph.D. degree should possess a high second class Master's degree and second class in the Bachelor's degree

OR

(iii) A candidate not possessing Ph.D. degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree.

NOTES:

(1) Age limit for the said posts, excluding post No. 1 not exceeding 45 years. However, the same is relaxable in the case of candidates who are already in the services of Bhavnagar University, or its departments as well as in the colleges.

(2) Candidates already in service, must apply 'through proper channel'.

(3) Preference will be given to the experienced and qualified candidates belonging to scheduled caste and scheduled tribes.

(4) Candidates belonging to scheduled castes and scheduled tribes should attach their caste certificates from the competent authority.

(5) Applicants must attach the copies of the Mark-sheets and other relevant certificates with the applications. Applications without the same will not be considered.

(6) Only Government approved Institutions courses will be considered for the post No. 4.

(7) Applications received after the prescribed date will not be considered.

(8) Those candidates who have applied for post No. 5 vide this office Notification No. 5/89 need not apply again.

(9) Those candidates who have applied for post No. 6 vide this office Notification No. 1/90 need not apply again.

REGISTRAR

TAMIL UNIVERSITY, THANJAVUR

ADVERTISEMENT

Applications are invited in prescribed form (Quadruplicate) on or before **20.6.90** for the following post:

DEPUTY REGISTRAR: Number of Post: 1 (Open Competition)
Scale of Pay: Rs. 3000-100-3,500-125-4,500/-

(For principals scale of pay will be protected)

Qualifications:

ESSENTIAL:

a. A First or Second class Master's Degree

b. At least 4 years of experience in University Administration/Accounts in a Senior capacity and sound knowledge of University affairs

or

Principal of a college for not less than 4 years.

DESIRABLE

a. M.B.A., or M.L., Degree

b. Publications in Tamil

Age: Should have completed 35 but not 45 years.

The application blanks and general instructions, may be obtained from the "Registrar, Tamil University-613 001" furnishing a Demand Draft for Rs. 25/- (Rupees Twenty Five) (Rupees 15/- for Scheduled Caste/Scheduled Tribe candidates) drawn in favour of the 'Finance Officer, Tamil University, Thanjavur' with a self-addressed envelope (31 c.m. × 13 c.m.) bearing postage stamps of the value of Rs. 2.60

Dr. P. Chinnian
Dated : 31.5.90 **REGISTRAR**

PANJAB UNIVERSITY (CHANDIGARH)

(Advt. No. 5/90)

Applications are invited for the following posts so as to reach the Registrar, Panjab University, Chandigarh by **30.6.1990.** Fourteen days extra time is permissible to persons who have to submit their applications from abroad:

1. **PROFESSORS:**
(Rs. 4500-150-5700-200-7300)
Anthropology (Physical Anthropology)-1; Geology-1; Pharmaceutical Sciences (Pharmaceutics)-1; Chem. Engg. & Technology-3 (Chem. Engg.-2, Engineering-1); Ancient Indian History, Culture & Arch.-1; Commerce & Business Management-1; Dayanand Chair for Vedic Studies-1; Economics-1; Gandhian Studies-1; Geography-2; Panjabi Lexicography (Unit)-1; Public Admn.-1; Psychology-1; Sociology-2 (including one post of Baba Prithvi Singh Azad Professorship).

2. **READERS:**
(Rs.3700-125-4950-150-5700)
Anthropology (Social Anthropology)-1; Geology-1; Biotechnology-4; Microbiology-2; Pharmaceutical Sciences-4 (Pharmacology-1, Pharmacognosy-1, Pharmaceutical Chemistry-1 & Pharmaceutics-1); Physics-7; Chinese-1 (Deptt. of Central Asian Studies); Commerce & Business Management-2; Economics-1; French-2 (one temporary but likely to be made permanent); Labour Law-1; Physical Education-1; Political Science-1; Public Admn.-

1; Computer Science & Applications-4; Mathematics-4; Political Science-1 (P.U. Evening College); Economics-1 and History-1 (Directorate of Correspondence Courses).

3. **READER-cum-EDITOR-1:**
(Rs.3700-125-4950-150-5700)
Deptt. of Hindi (Temporary but likely to be made permanent).

NOTE:

1. The Vice-Chancellor could place before the Selection Committee names of suitable persons for its consideration alongwith the applications received in response to the advertisement.
2. It is not obligatory on the part of the University to call for interview every candidate who possesses the essential qualifications.
3. The number of vacancies may change.
4. The University may also prepare a waiting list/panel, as per rules, in order of merit, up to 3 persons, which shall be valid for a period of six months.

Application forms, alongwith 'Detailed Instructions for Candidates' containing qualifications (essential and desirable), specialization of various posts and other details, can be obtained from the Cashier, Panjab University, Chandigarh, personally on payment of Rs. 15/- (inclusive of fee) or by making a written request to the Deputy Registrar (Estt.), Panjab University, Chandigarh, accompanied by self-addressed stamped (worth Rs. 5.40) envelope of 23x10 cms. and postal order of Rs. 15/- drawn in favour of the Registrar, Panjab University, chandigarh.

MEERUT UNIVERSITY, MEERUT

Applications are invited for the following teaching posts. The application on prescribed form should reach the Registrar, Meerut University, Meerut latest by **7.7.1990.**

(A) One post of Professor in Statistics in the grade of Rs. 4500-150-5700-200-7300.

Minimum Qualifications:

1. Eminent scholar with published work of high quality and active engagement in research and ten years experience of teaching or research and experience of guiding research at doctoral level, in Statistics.

OR

2. Outstanding scholar with established reputation for significant contribution to knowledge.

Essential Qualification:— Essential specialisation is required in Queueing Theory and Reliability theory with masters degree in Statistics.

(B) One post of Reader in English (Leave vacancy upto 31.10.1991) in the grade of Rs. 3700-125-4950-150-5700.

Minimum Qualifications:

1. Good academic record with a doctorate degree or equivalent published work, and active engagement in research or innovation in teaching methods or production of teaching materials; and
2. Five years experience of teaching or research including at least three years as Lecturer or in an equivalent position.

Provided that the requirement contained in sub-clause 2 may be relaxed in the case of a candidate who, in the opinion of the Selection Committee, has outstanding research work to his credit.

NOTE:

Other things being equal, preference will be given to the Scheduled Caste/Tribe candidates who are considered fit. Such candidates should attach certificate to that effect from the District Magistrate.

Prescribed application form can be obtained by sending a request to the Dy. Registrar (Accounts), Meerut University, Meerut-250005 alongwith a self-addressed envelope of size 23x10 cms. and stamped worth Rs. 2.40 accompanied by a Bank Draft of Rs. 20/- in favour of the Finance Officer, Meerut University, Meerut or by cash payment of Rs. 20/- at the cash counter. I.P.O. or M.Os. are not acceptable. While requesting for application form please mention "Application for teaching post" on the envelope.

V.B. Bansal
REGISTRAR

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited **upto 05.07.1990** for a post of Management Information Operator (Reserved for ST category) in the scale of pay of Rs. 1200-30-1560-EB-40-2040 in the Hqs. Office of the Council, New Delhi.

Essential Qualification and Experience: Bachelor Degree with Statistics/ Mathematics.

Desirable: One year experience in coding and compilation data pertaining to Health & Family Welfare Planning or Knowledge in key punching/key to disk/key to tape.

Age: 30 years (including relaxation of 5 years for SC/ST)

Allowances as per Central Govt. Rules are admissible. Benefits of Pension admissible.

Candidates called for interview will be paid II Class rail fare by the shortest route on production of documents.

Applications from employees working in Central/State Govt. Deptt./Public Sector Undertakings and Govt. funded research agencies must be forwarded through proper channel.

Application may be submitted on plain paper giving full particulars regarding date of birth, qualifications, experience and with a proof that he/she belongs to ST Community issued by the competent authority.

Application duly completed should be sent to the Director General, **Indian Council of Medical Research, Ansari Nagar, New Delhi-110 029.**

ADMISSION

ENGINEERING & PHARMACY

JANATA SHIKSHAN PRASARAK MANDAL, PUSAD-445215, DISTT. YAVATMAL (M.S.) Offers admissions to First year Engineering Courses (CIVIL, MECHANICAL, ELECTRONICS, COMPUTER ENGINEERING, CONSTRUCTION TECHNOLOGY AND INDUSTRIAL ELECTRONICS). First Year Diploma in (CIVIL, MECHANICAL, ELECTRONICS). First Year Degree and Diploma in PHARMACY. Direct admission to Second Year B.E. & Pharmacy for diploma holders. For detail information & free brochure send envelope bearing stamps of Rs. 2.20.

PRINCIPAL

CENTRAL DRUG RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

(SPECIAL RECRUITMENT DRIVE FOR SCs/STs)

ADVERTISEMENT NO. 7/90

Applications on the prescribed form are invited from Indian Citizens belonging to the Scheduled Caste/Scheduled Tribe categories for the following posts:—

JUNIOR TECHNICAL ASSISTANT: 3 Posts
(Rs. 1400-40-1800-EB-50-2300)

Post No. (i) (Biochemistry) (For ST)
EQ: B.Sc. with Physics and Chemistry as main subjects.
DQ: Experience in handling scientific instruments/material like spectrophotometers, fluorimeters and radio isotopes. **JR:** To maintain and use instruments involved in estimation and separation of biochemical entities.

Post No. (ii) (Process Development Division) (For ST)
EQ: B.Sc. with Chemistry as one of the subjects.
DQ: Experience in Research Development of processes for synthetic drug intermediates or chemical processes industry. **JR: The incumbent will assist in scaling up studies concerned with the programme in the field of drug and drug intermediates. Has to work in shifts for operation of chemical plants. Has to carry out literature survey and help in preparation of technical reports.**

Post No. (iii) (Endocrinology) (For SC)
EQ: B.Sc. with Chemistry, Zoology and Botany.
Experience of working in biological lab. **JR:** To assist in screening of compounds for antifertility activity in rodents and monkeys and routine laboratory work.

GENERAL CONDITIONS:

1. The above posts carry usual allowances as admissible under the rules of Govt. of India. Total emoluments at the minimum and the maximum of the scale will be as follows:—

Scale of pay	**Minimum**	**Maximum**
Rs. 1400-2300	Rs. 2217/-	Rs. 3624/-

2. The candidates will have to furnish certificates regarding SC/ST status from the prescribed authority in the required format attached to the application form.
3. Since it is not possible to call all the eligible candidates for the interview, the applications will be shortlisted for the purpose and the decision of the Director in this behalf will be final.
4. Applicants called for attending the interview will be paid single second class railfare to and from the actual place of travel or residence whichever is nearer.
5. Applications for more than one Disciplines may be submitted separately for each Discipline.
6. The candidates in Government/Semi Government Organizations, Public Undertakings and Autonomous Bodies should route their applications through proper channel.
7. The Institute has a system of periodical assessment promotion based on merit.
8. The prescribed application form may be obtained from the Office of the Controller of Administration, Central Drug Research Institute, Chattar Manzil Palace, P.B. No. 173, Lucknow-226001 (U.P.), by sending a requisition duly indicating the post and advertisement number alongwith a self-addressed envelope of size 23x10 cm. Any request for application form received after **25.06.90** will not be entertained. Application duly completed (supported by the attested copies of certificates and testimonials) should reach the Director, Central Drug Research Institute, Lucknow, on or before **23.07.90**. Application received after this date will not be considered.
9. Canvassing in any form and/or bringing in any influence, political or otherwise, will be treated as disqualification for the post.

Dr. Yashwant Singh Parmar University of Horticulture and Forestry, Nauni (Solan)-173230 (HP).

ADMISSION NOTICE

Applications are invited for admission to the following programmes for Academic Session 1990-91 starting from 25-7-1990.

I. B.Sc. Horticulture and B.Sc. Forestry 4-year Programmes

Admission shall be through a combined entrance examination to be held on 22-7-1990 at 9.00 A.M. at St. Luke's High School, Solan (H.P.).

ELIGIBILITY

10+2/equivalent examination with English, Physics, Chemistry and Biology/Mathematics or Agriculture of a recognised Board/University with a minimum of 50% marks.

Reservation for Scheduled Caste/Tribe Candidates

Twenty two and a half per cent (22-1/2%) of the total seats shall be reserved for candidates belonging to Scheduled Caste (15%) and Scheduled Tribe (7-1/2%). The minimum qualifying marks for these candidates shall be relaxable by 5%.

Other Information

(i) Since the B.Sc. Classes will start within two or three days of the entrance examination, the candidates should bring money etc. with them.

(ii) Last date for receipt of application is 13-7-1990 with examination fee of Rs. 50/- and 19-7-1990 with Rs. 100/- (Rs. 50/- + Rs. 50/- late fee). The fee is non-refundable even if the candidate is not found eligible to appear in the test.

II. Master's Programme

Admission is based on the performance in the qualifying examination.

Last date for the receipt of admission forms for M.Sc. in respect of following disciplines is 13.7.1990.

(a) Horticulture (Interview on 17-7-1990 at 11.00 A.M. at the University Campus)

1. Fruit Culture & Orchard Management
2. Fruit Breeding & Genetic Resources
3. Post Harvest Technology
4. Vegetable Crops
5. Floriculture & Landscaping
6. Mycology & Plant Pathology
7. Entomology & Apiculture

(b) Forestry (Interview on 16-7-1990 at 11.00 A.M. at the University Campus)

1. Forest Biology & Tree Improvement
2. Silviculture & Agro-forestry
3. Forest Products & Utilization
4. Soil Science & Water Management
5. Economics
6. Microbiology
7. Biochemistry
8. Plant Physiology
9. Statistics

ELIGIBILITY

B.Sc. (Hort./Fty./Agr. 4-year programme)/B.Sc. with OGPA 6.00/10.00 (2.70/4.00) or its equivalent under course credit system or first division under annual system (Relaxable by 5% for Inservice as well as Scheduled Caste and Scheduled Tribe candidates) from a recognised University.

Order of preference in qualification for admission to M Sc. is given in the prospectus.

Reservation for Scheduled Caste/Tribes Candidates

Same as given for B.Sc. (Hort.) and B.Sc. (Fty.) 4-year programmes.

General Information for All

(i) Prospectus-cum-Admission Form can be had from the Registrar on payment of Rs. 10.00 at the Counter and Rs. 15/- by post through Crossed IPO in the name of the Comptroller of this University. NO MONEY ORDERS/CHEQUES ARE ACCEPTABLE.

(ii) No separate letter for entrance examination/interview will be issued.

(iii) Candidates should attend entrance examination/interview at their own cost on the specified date and time and bring original certificates.

(iv) Prospectus will be available for sale after 4th June,1990.

B.S. Nainta
REGISTRAR

THE UNIVERSITY OF JODHPUR

(ESTABLISHMENT SECTION)

No. JDR/U/ESTT/90/5743

Dated : May 21, 1990

Advertisement No. ESTT/1/90-91, 21/90-91

Applications are invited on the prescribed form which can be obtained from the University Office on payment of Rs 10/- in cash or by crossed Indian Postal Order payable in favour of Registrar, University of Jodhpur, Jodhpur along with self-addressed envelope of 27 x 12 cm. size affixing postal stamps of Rs. 6 50 for the following posts so as to reach the ucdersigned on or before 2-7-1990. However, the last date for supply of application form is 25-6-90.

Department	No. of posts	Nature of vacancy	Category		
			Gen.	SC	ST
FACULTY OF ARTS					
Professor : Rs. 4500-150-5700-200-7300 (UGC Pay Scale)					
Sociology	1	Permanent	1	—	—
Associate Professors : Rs. 3700-125-4950-150-5700 (UGC Pay Scale)					
English	2	Permanent	1	1	—
Economics	1	Permanent	—	1	—
Political Science	1	Permanent	—	1	—
Assistant Professors : Rs. 2200-75-2800-100-4000 (UGC Pay Scale)					
Geography	I	Permanent	—	1	—
History	2	Permanent	1	1	—
Philosophy	4	Permanent	2	1	—
Music	1	Permanent	—	1	1
Psychology	1	Permanent	—	1	—
Political Science	1	Permanent	1	—	—
Sanskrit	2 (1)	Permanent	—	1	—
	(1)	Plan	1	—	—
Sociology	1	Permanent	—	1	—
FACULTY OF SCIENCE					
Professor : Rs. 4500-150-5700-200-7300 (UGC Pay Scale)					
Chemistry	1	Permanent	—	1	—
Associate Professors : Rs. 3700-125-4950-150-5700 (UGC Pay Scale)					
Chemistry	4	Permanent	1	2	1
Physics	1	Permanent	—	1	—
Zoology	2	Permanent	1	1	—
Mathematics	1	Permanent		1	—
Assistant Professors : Rs. 2200-75-2800-100-4000 (UGC Pay Scale)					
Botany	5	Permanent	3	1	1
Chemistry	6	Permanent	2	3	1
Geology	1	Permanent	—	1	—
Mathematics	2	Permanent	1	1	—
Physics	3	Permanent	1	1	1
Zoology	4	Permanent	2	1	1
FACULTY OF COMMERCE					
Professors : Rs. 4500-150-5700-200-7300 (UGC Pay Scale)					
Business Finance and Economics	1	Permanent	—	1	—
Associate Professors : Rs. 3700-125-4950-150-5700 (UGC Pay Scale)					
Management	1	Permanent	—	1	—
Business Finance and Economics	1	Permanent	—	—	1
Assistant Professors : Rs. 2200-75-2800-100-4000 (UGC Pay Scale)					
Management	1	Plan	1	—	—
Business Finance and Economics	1	Permanent	—	1	—
FACULTY OF LAW					
Assistant Professors ; Rs. 2200-75-2800-100-4000 (UGC Pay Scale	4	Permanent	2	1	1
FACULTY OF ENGINEERING					
Professors : Rs. 4500-150-5700-200-7300 (UGC Pay Scale)					
Mechanical Engineering	1	Permanent	1	—	—
Civil Engineering	2	Permanent	1	1	—
M.C.A.	1	Plan	1	—	—
Associate Professors : Rs. 3700-125-4950-150-5700 (UGC Pay Scale)					
Electronics	1	Permanent	—	1	—
T.V. Tech.	1	Plan	1	—	—
M.C.A.	2	Permanent	1	1	—
Mechanical Engineering	2	Permanent	1	1	—
Structural Engineering	1	Permanent	1	—	—
T P.O.	1	Permanent	1	—	—
Assistant Professors : Rs. 2200-75-2800-100-4000 (UGC Pay Scale)					
Electrical Engineering	3	Permanent	2	1	—
M.C.A.	2	Plan	1	1	—
Civil Engineering	1	Permanent	—	1	—
Demonstrators : Rs. 2000-60-2300-75-3200 (State Govt. Pay Scale)					
Mining Engineering	1	Permanent	1	—	—
Structural Engineering	2	Permanent	1	1	—
Elect. & Comm. Engg.	1	Permanent	1	—	—
Civil Engineering	1	Permanent	1	—	—
UNIVERSITY LIBRARY					
Librarian : Rs. 4500-150-5700-200-7300 (UGC Pay Scale)	1	Permanent	1	—	—

Details of qualifications alongwith General conditions etc. will be available to candidate alongwith application forms.

REGISTRAR

CENTRAL DRUG RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

ADVERTISEMENT NO. 6/90

Applications are invited for the following posts in Central Drug Research Institute, Lucknow —

1. **SCIENTIST 'F'**: (2 Posts) (Rs. 5100-150-5700-200-6300)

Post No. (i): (Biochemistry)

EQ: Excellent academic career. Ist Class M.Sc. with Ph.D., MD in Biochemistry or related disciplines with original work as evidenced by publications, atleast 10 years R&D experience and evidence of leadership of multidisciplinary group and established reputation in the field. **JR:** To plan, lead and organise R&D activities of the Division of Biochemistry with major emphasis on immunological and biochemical aspects of parasitic diseases, basic studies on membrane structure and function and analysis of drug action at cellular and subcellular levels

Post No. (ii): (Planning & Industrial Liaison)

EQ: Excellent academic career with Ist Class Master Degree and Ph.D. or equivalent degree in a biomedical or chemical discipline with atleast 10 years experience in R&D and/or programme evaluation and industrial liaison in a biomedical research institute. **JR:** To head the Division of Technical information, planning and industrial liaison. In addition to industrial liaison, the Division is involved in planning and budgeting as well as monitoring of R&D activities of the Institute, filing of patents, preparation of annual reports, technology transfer documents etc. and management of international collaborative programmes.

2. **SCIENTIST E-I:** (3 posts) (Rs. 3700-125-4700-150-5000)

Post No. (i): (P.D. Division)

EQ: Consistently excellent academic record with M.Tech./Ph.D. in Chemical Technology or equivalent qualification, about 10 years R&D experience in development upscaling of technology or production of bulk drugs as evidenced by patents or publications. Experience in plant design desirable. **JR:** Upscaling of processes for bulk production of known and new drugs, plant design, techno-feasibility studies

Post No. (ii): (Clinical and Experimental Medicine)

EQ: MD in Medicine, Pharmacology or related Medical subjects with about 10 years experience and preferably training in Clinical Pharmacology. Experience of Clinical trials with new drugs desirable. **JR:** Planning, Coordinating and monitoring various phases of clinical studies with new drugs and preparing submissions for the Drug Controller.

Post No. (iii): (Biostatistics)

EQ: First Class M.Sc. with Ph.D. in Statistics with about 10 years research experience in biostatistics, development of appropriate software etc. **JR:** Design of Clinical trial and animal Experimental protocols, analysis of clinical and pre-clinical data with new drugs

3. **SCIENTIST 'C'**: (9 posts) (Rs. 3000-100-3500-125-4500)

Post No. (i):

EQ: M.D. in Medicine, Pharmacology or related subjects with a consistently good academic record and 2 years research experience preferably in clinical pharmacology. **JR:** Clinical studies with new drugs at clinical pharmacology unit, Bombay.

Post No. (ii):

EQ: First Class M.Sc. in Chemistry or Physics with Ph.D. in Biophysics or related discipline and atleast 2 years experience of working on structure of biomolecules using X-ray and computer graphics. **JR:** Structural studies on drugs, paptides, lipids and especially proteins using X-ray and other biophysical techniques and computer graphics.

Post No. (iii):

EQ: First Class M.Sc. in Chemistry/Biochemistry/Microbiology/M.V.Sc. (Microbiology) with Ph.D. or M.D. (Microbiology) with a consistently good academic record and about 2 years research experience in immunochemistry and hybridoma technology preferably in relation to infectious diseases. **JR:** Membrane structure and function studies on immuno-regulatory cells in infectious diseases and to organise production of monoclonal antibodies for Institute research programmes.

Post No. (iv):

EQ: First Class M.Sc. in Biochemistry/Botany/Microbiology/Biotechnology with 6 years experience or Ph.D. in Microbial genetics/molecular biology with 2 years experience. **JR:** To construct new microorganisms by genetic manipulation, genetic engineering and recombinant DNA technology for developing new fermentation processes.

Post No. (v):

EQ: First Class M.Sc. in Microbiology/Zoology, M.V.Sc. (Microbiology) with Ph.D. or M.D. (Microbiology) in above disciplines with 2 years experience in immunology/chemotherapy of protozoan diseases like malarial and lieshmaniasis. **JR:** Development of vaccine/immunodiagnostic tests/new drugs for protozoal infections and studies on host parasite relationship.

Post No. (vi):

EQ: First Class M.Sc. in Pharmacology/Biochemistry/MBBS/M.V.Sc./M.Pharm. (Pharmacology) with Ph.D./M.D. in Pharmacology/Biochemistry with 2 years experience in neuropharmacology or related areas. **JR:** To undertake studies in neuropharmacology including development of new centrally acting drugs.

Post No. (vii):

EQ: First Class M.Sc. in Zoology/M.V.Sc. (Pathology), MBBS with M.D./Ph.D., Pathology or Ph.D. Zoology (Histopathology) with 2 years experience in mammalian histopathology. **JR:** Regulatory toxicity studies of new agents and to prepare histopathological reports.

Post No. (viii):

EQ: First Class M.Sc. in Biochemistry with Ph.D. and 2 years experience preferably in parasitic diseases/immunology. **JR:** Immunological studies in parasitic diseases for lead generation, antigen characterization or development of new immunomodulators.

Post No. (ix):

EQ: First Class M.Sc. (Life Sciences, Botany, Zoology) or Microbiology or M.V.Sc. (Microbiology) with Ph.D. Atleast 2 years experience in tissue culture and maintenance of animal cell lines. **JR:** Maintenance of primary and secondary cell lines and animal organs and to make available cell culture to different laboratories in the Institute.

4. **SCIENTIST 'B'**: (13 posts) (Rs. 2200-75-2800-EB-100-4000)

Post No. (i):

EQ: First Class M.Sc., M.V.Sc. or Ph.D. in Biochemistry/Physiology/Zoology. Two years experience in mammalian reproduction and/or animal tissue culture desirable. **JR:** Studies on reproductive biology of mammals and to develop in vitro assays for evaluation of antifertility agents

Post No. (ii): (Reserved for SC)

EQ: First Class M.Sc. in Biophysics/Physics or Life Sciences/M.V.Sc. (Physiology, Pharmacology)/MBBS/MD/Ph.D. Two years experience in above areas or electrophysiology desirable. **JR:** Studies on ionic channels in muscles and single cell preparations.

Post No. (iii):

EQ: First Class M.Sc./Ph.D. in Biochemistry. Two years research experience in parasite biochemistry/immunology desirable. **JR:** Studies on biochemical/immunological aspects of parasite diseases.

Post No. (iv):

EQ: First Class M.Sc. in Zoology/Microbiology/Biotechnology or M.V.Sc./Ph.D. in Microbiology. Two years experience in area of Mycobacterial infections or microbial genetics desirable. **JR:** Studies on molecular biology and antigens determinants of mycobacterial infections.

Post No. (v & vi): 2 posts (one reserved for ST)
EQ: First Class M.Sc. in Pharmacology or related disciplines/MBBS/M.V.Sc./M. Pharm with pharmacology. Ph.D./M.D. Two years experience in mammalian pharmacology preferably in development of new drugs desirable. **JR:** Preclinical Pharmacological studies with new natural products or synthetic compounds.

Post No. (vii & viii): 2 posts (One reserved for SC)
EQ: First Class M.Sc./Ph.D. in Biochemistry/Organic Chemistry. Two years experience in synthetic organic chemistry or enzyme immunoassays of small molecules desirable. **JR:** Development of radio and enzyme immunoassay of drugs and to study in vitro metabolism of drugs.

Post No. (ix):
EQ: First Class M.Sc./Ph.D. in Botany. Two years experience in collection and identification of Indian plants particularly angiosperms and knowledge of international code of Botanical Nomenclature and herbarium methodology desirable. **JR:** Collection of plants/materials for Pharmaco-chemical investigations from various parts of India including marine samples and maintenance of herbarium.

Post No. (x):
EQ: First Class M.Sc. (Physics)/B.E./B.Tech./M.E. in Electronics/Ph.D. (Physics). Two years experience in maintenance of microprocessor based analytical equipments like NMR desirable. **JR:** To trouble shoot and repair microprocessor controlled NMR, Mass spectrometer, HPLC and other analytical instruments.

Post No. (xi):
EQ: First Class M.Sc. in Life Sciences/Biochemistry/Biotechnology/Ph.D. Two years experience of cloning and expression of genes desirable. **JR:** Studies in protein characterization and gene expression in bacteria and yeast.

Post No. (xii):
EQ: First Class M.Sc. (Botany), Microbiology, Biotechnology/Ph.D. Two years research experience in medical mycology particularly in immunological studies or evaluation of new drugs desirable. **JR:** Evaluation of synthetic compounds or natural products as antifungal drugs, immunological studies on human pathogenic fungi.

Post No. (xiii):
EQ: First Class Master's Degree in Natural Sciences/Operational Research/Commerce/Computer Science/Ph.D. Two years experience in project evaluation and monitoring in a biomedical research institution and computerisation of R&D data desirable. **JR:** Planning and budgeting of R&D projects, computerisation of project data and budget, and preparation of annual/five year plan documents.

5. **ELECTRICAL ENGINEER 'A'** (Rs. 2000-60-2300-EB-75-3200-100-3500)
EQ: Ist Class Diploma in Electrical Engineering (of 3 years duration) or equivalent plus 5-8 years experience in maintenance of electrical motors, HT/LT distribution system or BE (Electrical) or equivalent with 2-4 years experience in maintenance of electrical motors, HT/LT distribution system etc. **JR:** Maintenance of HT/LT distribution system, central air conditioning plant, repair of electrical motors etc.

6. **SENIOR TECHNICAL ASSISTANT** (Reserved for ST) (Rs. 1640-60-2600-EB-75-2900)
EQ: Degree in Commercial Arts/5 years Diploma Course in colour and black and white photography/3 years course in Medical Science/photography from a recognised Institute or University with 3-5 years experience after graduation. **JR:** The candidate will be required to undertake the work of photomicrography, microphotography, outdoor and indoor colour and black and white photography and may have to draw Scientific diagrams and charts.

GENERAL CONDITIONS:

1. **All the above posts carry usual allowance as admissible under the rules of Govt. of India. Total emoluments at the minimum and the maximum of the scale including HRA at present are as follows:—**

Scale of pay		Minimum	Maximum
1. Scientist 'F'	5100-6300	Rs. 7603	Rs. 9055
2. Scientist 'E-I'	3700-5000	Rs. 5905	Rs. 7475
3. Scientist 'C'	3000-4500	Rs. 4815	Rs. 6905
4. Scientist 'B'	2200-4000	Rs. 3861	Rs. 6205
5. Electrical Engr.(A)	2000-3500	Rs. 3285	Rs. 5505
6. STA	1640-2900	Rs. 2763	Rs. 4677

2. Research experience should preferably be supported by publications in refereed journals.
3. Candidates belonging to SC/ST communities will have to furnish certificates from prescribed authority in the required format printed at page 345 of the Brochure on reservation of SC & ST in services which can be supplied on demand failing which they will not be entitled to the concessions admissible to them, if any.
4. Since it is not possible to call all the eligible candidates for the interview, the applications will be shortlisted for the purpose and the decision of the Director will be final.
5. Applicants called for attending the interview will be paid single second class railfare to and from the actual place of travel or residence as mentioned in the application whichever is nearer to Lucknow Railway Station.
6. Separate application for each post alongwith requisite postal order in a separate envelope indicating the advertisement number and post applied for should be sent.
7. The candidates in Government/Semi-Government Organisations/Public undertakings and Autonomous Bodies should route their applications through proper channel.
8. The number of vacancies to be filled may vary at the time of actual selection and due consideration for reservations of posts will be given wherever necessary.
9. Persons selected for the posts of Scientist 'F' Sc. E-I, Sc. 'C' and Sc. 'B' will be on a contract for a period of six years in the first instance **except** for CSIR employees already confirmed against lower posts. The remaining posts are pensionable subject to the CSIR rules and regulations in force.
10. The Institute has a system of periodical assessment promotion on merit.
11. The prescribed application form may be obtained from the office of the Controller of Administration, Central Drug Research Institute, Chattar Manzil Palace, P.B. No. 173, Lucknow-226001 (U.P.), by sending a requisition duly indicating the post and advertisement number alongwith a self-addressed envelope of size 23x10 cm. Any request for application form received after **21.06.1990** will not be entertained for supply by post. Application duly completed (supported by the attested copies of certificates and testimonials) alongwith a non-refundable fee of Rs. 10/- (no application fee is prescribed for SC/ST candidates) in the form of crossed Indian Postal Order drawn in favour of the Director, Central Drug Research Institute, Lucknow, should reach Director, Central Drug Research Institute, Lucknow on or before **19.07.1990.** Application received after this date will not be considered.
12. Canvassing in any form and/or bringing in any influence political or otherwise, will be treated as a disqualification for the post.

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University News

ONDAY, JUNE 18, 1990

Rs. 2.50

C. F. T.

APOU Convocation

Sri Krishan Kant, Chancellor of Andhra Pradesh Open University, awarding the Degree of Doctor of Letters (*Honoris Causa*) to Dr. James Ajodhya Maraj, President, Commonwealth of Learning, Vancouver, Canada at the Fourth Annual Convocation of the University. Also seen in the picture to the right is Prof. R.V.R. Chandrasekhara Rao, Vice-Chancellor.

THE GANDHIGRAM RURAL INSTITUTE

(Deemed University)

GANDHIGRAM-624 302

DINDIGUL QUAID-E-MILLETH, DIST. TAMILNADU

ADMISSION NOTIFICATION

The Gandhigram Rural Institute (Deemed University) is an Institute of Higher Education of All India status for men and women under the University Grants Commission is offering the following courses (in English Medium) which are equivalent to similar degrees in all other Universities:

Ph.D. in Mathematics, Physics, Chemistry, Home Science, Economics, Rural Development, English, Tamil and other branches.

M.Phil: 1. Futurology 2. Micro Level Planning 3. Gandhian Thought and Peace Science.

M.A. 1. Rural Development 2. Rural Economics and Extension Education 3. Rural Sociology and Panchayati Raj 4. Cooperative Management 5. Tamil and Indian Literature 6. Communicative English.

M.Sc. 1. Applied Chemistry 2. Applied Physics 3. Home Science Extension for Rural Development 4. Mathematics and Computer Application.

B.A. 1. Development Administration 2. Cooperation 3. Rural Industries and Management.

B.Sc. 1. Mathematics 2. Physics 3. Chemistry 4. Home Science.

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CERTIFICATE COURSES:

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EVENING COURSES: One year Certificate course in (i) Computer Programming (ii) Shanti Sena (iii) Hindi (iv) Malayalam (v) Arabic.

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The last date for receipt of completed application is **20th JUNE** for all Under Graduate Courses and **16th JULY, 1990** for all P.G. & Research degrees.

GANDHIGRAM
Dated: 4.6.1990

T.S. Govindarajan
REGISTRAR

26 JUN 1990

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Editor :
SUTINDER SINGH

MASTER CONCEPT FOR EDUCATIONAL POLICIES

K. Venkata Reddy*

Education, if it is to be meaningful and fruitful, should help one to live a "full-life", to "drink the cup of life to the lees" as Tennyson's Ulysses would say and it should be a continuous and lifelong affair.

Life changed very slowly in the past and one could have said, in the words of R.L. Stevenson, that "Tuesday came for the simple reason that Wednesday was not due till tomorrow". Knowledge industry, so to speak, has become one of the major concerns of mankind and is engaging the attention of more and more persons.

It is now increasingly realised that the education one gets before one's employment is never complete so as to enable him to discharge his duties effectively. The report of the International Commission, appointed by UNESCO on the development of education, has suggested that "every individual must be in a position to keep learning throughout his life" and that "the idea of life-long education is the keynote of the learning society". This implies that one receives education not through formal education alone, but through self-study, the promotion of which is one of the important characteristics of all distance education programmes. Thus, the international report triggered off a world-wide interest in the importance of life-long education by proposing it as the master concept for all educational policies in the years to come both for the developed and the developing countries.

Knowledge is said to be doubling approximately every eight to ten years with the result that some of the new discoveries and inventions outpace an individual's capacity even to comprehend them. This tremendous growth in knowledge requires every one to reorient one's long established concepts and understandings, views and images, values and principles, and beliefs and convictions so that one may adjust to the demands of the new situations and be able to contribute to modern changing environments and to absorb an ever-expanding and changing body of knowledge.

A university degree is no longer adequate nor valid for a life-time in the present epoch. Unless we continually and constantly re-educate ourselves, we stand in peril of being brushed aside as back-benchers in the onward march of knowledge. A programme of life-long, integrated education aimed at the fullest development of the personality of the individual is a must both for his growth and survival. It has therefore, become incumbent on the part of our universities to provide for this kind of programme on a flexible basis so as to cover every individual at almost every moment of his life. They must establish duly worked-out linkages between the formal system of education and the informal one catering to the needs of life-long education with the aid of mass media.

Thus, the requirements of a rapidly changing society, the continuing need for renewing professional and vocational knowledge and skills, and the desire to explore new interests and latent capacities have given a new impetus to the concept of life-long education. Hence the need for some mechanism by which all workers continue their professional growth. They need to advance constantly and to be stimulated professionally through a variety of activities throughout their work tenure. As J.C. Muffit puts it, "this is an age of change. It requires new and rapid adjustment. Its impact

(Continued on page 10)

**Professor of English, Sri Krishnadevaraya University, Anantapur-515003.*

WANTED: A PERESTROIKA IN HIGHER EDUCATION

M.V. Pylee*

> 'Higher education in India is in a deep crisis. The crisis has been there for quite some time, but in recent times, it has reached a proportion unprecedented.'

The Madhuri Shah Committee on the Working of Central Universities stated 'that hardly a week passes in the country when the newspapers do not carry some news or the other about disturbances in the universities including the central universities'. Strikes, gheraos and closures of colleges and universities are the usual headlines. The crisis and collapse of the system is so widespread that it is impossible to go into all cases of colleges and universities signalling the collapse. It is well known that about one-third of the colleges and even universities remain closed at one time or another because of disturbances of some type or other.

The higher education system has become a low level business proposition involving the students, parents, teachers, different categories of non-teaching employees and the management or administration, all engaged in all types of deals by means of which admissions are secured, degrees are bought and sold, question papers are traded and answer books manipulated. Colleges and universities are crowded with activists of political parties, big and small, who threaten and blackmail ordinary teachers, students and administrators. An honest student's life has become risky. A conscientious teacher is afraid to perform his duties. Caste and communal considerations dominate the entire structure of college and university administration. Appointments of teachers are largely decided on caste or graft or on both. Examinations assume proportions of a battle in which those responsible for conducting them face all kinds of threats even to their lives if they try to stop or even interfere with the malpractices. Anti-social elements invade examination halls and disrupt their smooth conduct. Sections of students have now even started demanding as a right freedom to copy in examinations.

Another source of disturbance in the compuses is the teaching community itself. Complaints against teachers are many. Non-performance of their duties is only one of the minor ones. A sizeable proportion of teachers do not take classes regularly, do not supervise the research scholars, and even when they teach what they teach is outdated syllabi. Some teachers have developed vested interests and often are at the back of most of student troubles and problems. They would like to see classes suspended or institutions closed because of these troubles they could get off from the teaching work. Many of them take up outside assignments missing classes on some pretext or the other.

Disturbances created by the non-teaching staff are steadily on the increase in recent years. Through collective action embracing their ranks on a countrywide basis, they have become a veritable menace to the entire higher education system. In many universities the non-teaching staff dictates terms to the authorities and the authorities are at their mercy to get even the minimum work done for the running of the institution.

It is well known that the financial position of many universities is utterly unsatisfactory. They operate with heavy deficits and some of them have obtained overdrafts from banks amounting to lakhs to meet their current expenditure. Some of them find it difficult even to pay the salaries to the staff and meet the day-to-day financial commitments. To a large extent the financial problems of universities are due to mismanagement. Added to this the state governments without providing adequate finance to the existing universities start new ones indiscriminately and mostly on political considerations. New departments and courses are started on the whims and fancies of the authorities or at the instance of vested interests or selfish politicians without careful examination of the financial implications. Amounts earmarked for one item are diverted for other purposes. Inadequate, untimely and inefficient financing system has adversely affected the performance of the university administration and does immense harm to its development and academic growth.

The bulk of students in the higher education system belongs to the affiliating colleges. They are part of a system designed and developed by the British during the colonial rule. Whatever virtues the system had in a bygone age have altogether disappeared and it is unable to face the challenges of higher education of the present day. The tragedy of independent India is that we go on clinging to a century-old system which has been discredited and abandoned even in its country of origin. In spite of occasional attempts at improving its structure and operational methods, the affiliating system has grown into a gigantic monolith which resists any substantial change for reform. Today the affiliating

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Former Vice-Chancellor, University of Cochin and now Director General, Asian Institute of Development and Entrepreneurship, Cochin University Junction, Cochin-682022.

system has become an anti-educational force disrupting the very process it professes to sustain, encourage and develop. Once upon a time affiliated colleges were the repositories of the university's trust. They were the agents of its functions and activities. The affiliating colleges served the cause of higher education through high standards of teaching, learning, research and extra-curricular activities. All that is gone. The affiliating system has failed in all its onerous tasks. Maladministration, inefficiency, indiscipline and lack of purpose and direction have seeped into the very vitals of the system. Most of the affiliating colleges have become, instead of centres of learning, pockets of chaos, disorder, disruption and violence.

One of the most disturbing features of our arts and science colleges today is the presence of a large body of students incapable of and uninterested in the pursuit of knowledge and intellectual development. They often become a ready victim of ambitious and unscrupulous politicians who recruit them to fill their ranks. Small groups of these students often organise strikes, disrupt classroom work or examination, harass the principal and teachers, damage or destroy college or public property, create insecurity in the neighbourhood, and spread terror and violence in the campus. The bulk of the students and teachers succumb to their evil designs and the college gets forcibly closed and remains so for weeks and months.

There was a time when universities were autonomous. Today they have become the playground of pervasive politicisation. The functional autonomy of the system is a memory of the past. The tendency to regard the Vice-Chancellor as the appointee of the government and a stooge of the education minister rather than as the academic and administrative head of the university has caused an enormous erosion in the moral authority of the vice-chancellor. It has a dampening effect on the ability to promote the cause of development and the dignity of the office itself. In recent years, every state government in India has been trying to establish a procedure by which the authority for appointment of the vice-chancellor is placed exclusively with the government of the day. This lends itself to political manipulation and jockeying for patronage among careerists in the academic community. The same undesirable tendency pervades in the constitution of the different authorities of the university such as the Senate, Syndicate, Academic Council and even in the appointment of junior functionaries such as the Pro Vice-Chancellor, Registrar, Finance Officer and other senior officers. There is no civilised democratic country in the world where functional autonomy of the university system has been so ruthlessly suppressed, if not altogether destroyed, as in the state universities of India.

Poor quality of management at all levels of the university administration is the result of all these. Among the many contributory factors affecting quality, the following deserves special mention: Absence of systematic planning; grouping of unrelated activities and the consequent lack of clarity and confusion in functions and responsibilities; lack of decision making at all levels; lack of delegation and decentralisation; faulty staffing procedures; ineffective leadership; lack of motivation and lack of coordination; ineffective communication; lack of proper control mechanism; imprudent financial management; and poor public relations.

To facilitate better discussion, we may list the main evils and problems that afflict higher education today:

1. Mushroom growth of ill-equipped, ill-provided and inadequately staffed colleges and universities year after year.

2. Admission of undeserving students. As a result, there is large-scale creation of poorly equipped graduates who remain unemployed (most of them are unemployable), posing many problems such as social tensions, retardation of economic growth, violence, crime, etc.

3. Many colleges indulge in the evil practice of collecting capitation fee for admissions.

4. Politically-oriented student unions have become a menace to campus peace. Every political party, big or small, wants to build up its own students union and union elections are fought like elections to the legislatures. Often they end up in disputes, conflicts and violence in the campus and the consequent closure of institutions.

5. Substantial loss of working days every year due to agitations of one type or another.

6. Destruction of college property or public property during student agitations and consequent disturbances.

7. In the appointment of teachers, many considerations other than merit seem to influence decision making. Money plays a major role in the appointment of teachers in private colleges. Caste and communal consideration have decisive influence in the appointment of teachers.

8. Indiscipline among teachers has been widespread.

9. Poor quality of teaching and generally poor performance by college teachers. Most of them have poor motivation.

10. Negative attitude towards research among college teachers.

11. Politically-oriented tradeunionism among teachers. Multiplicity of unions among the teachers of the same institution makes both teaching and college administration very difficult and at times impossible to handle.

12. The evaluation system has become qualitatively poor, undependable and corrupt.

13. Examinations are not conducted according to schedule and results not announced in reasonable time after the examinations.

14. Conduct of examinations has become a hazardous and dangerous exercise for all concerned.

15. Various types of corruption are associated with the conduct of examinations; at the level of the students, that of the teachers and that of the administration.

16. Mass copying has become a common feature of the examination system.

17. Students demand the freedom to copy as a right.

18. Trade unionism among the non-teaching staff and their negative attitude towards work. They are now organised on political party basis and their organisations embrace state-wide and nation-wide membership.

19. Poor finances of colleges and universities. Consequently they are unable to provide adequate facilities to students, teachers and the non-teaching staff. Poor libraries, laboratories, playgrounds, hostel facilities etc., add to the alround degradation.

20. Political interference in the autonomy of higher educational institutions such as in the appointment of vice-chancellor and other top functionaries of the universities and the constitution of the different authorities of the universities.

21. Poor leadership at the higher levels of administration both in the colleges and the universities.

22. Indifference on the part of parents and the public.

Considering the abysmal degradation to which our higher educational institutions have fallen, one would wonder whether they could be redeemed at all. Perhaps the task is a near impossible one. Yet one cannot lose hope. There have been many instances in history of nations and institutions transforming themselves from an apparently hopeless situation into one of unbelievable success and glory.

What we need today is a perestroika, a wholesale restructuring of our system of higher education. I would not like to go into elaborate details of this restructuring but would confine to indicating briefly the direction in which it should address itself. Let us take the constituent parts one by one:

Students

Students form the raw material which is converted into finished products-enlightened citizens—that contribute to national growth. But poor raw material can never be converted into finished products off high quality. Admissions to higher educational insitutions, especially our colleges, are made indiscriminately. Every year, when the results of the School Leaving Examination are announced, newspapers highlight the shortage of seats in the colleges to admit all the successful students as if every one of them deserves a college education. In the developed countries of Europe, not more than twenty per cent enter the university. In England, it is around fifteen per cent. In the most affluent country of the world, the United States of America, which is supposed to have the highest percentage, it is about fifty. A highly restricted system of admissions is the first step to improve quality.

Only those who have proven aptitude for higher education be given admission. The seats in every course should be strictly regulated by the facilities available. Admissions be made strictly on merit. There should be enough counselling at schools and students who do not have necessary aptitude for higher education be advised accordingly and that advice should be gracefully accepted by the students and their parents. Other avenues should be provided for such students through technical/vocational or other institutions for further study. In any case, higher education is neither a birth right nor a fundamental right. It is a privilege which should be available only to the deserving.

Unfortunately in our country, the minimum qualification prescribed for most jobs—even at clerical level—is a university degree. So long as this condition remains the craze for college education and securing a degree will continue unabated. Hence this condition should be abolished

Higher education in our country is too cheap. In spite of the enormous increase in cost of education in the last forty years, the fee structure in our colleges, especially for the arts, science and commerce courses, continues to be almost the same as that existed decades ago. A steep rise in the fee structure will on the one hand make a disincentive and on the other add to the extremely poor finances of the higher educational institutions. Deserving poor students can be given scholarships or freeships to facilitate their studies. Students should be encouraged to pay for their higher education either through bank loans or part-time work.

How to make our students motivated is a major problem. The first step for this is the selection of the right student. A climate should be created in the job-market that getting a job depends on one's intrinsic competence and not just on the production of a degree or a diploma or on the basis of one's connection or influence.

Teachers

Right students without right teachers will not produce the right result. The selection of teachers in this context is of utmost importance. It is not enough that there are well defined procedures and rules for selection. The effort of the appointing authority should be to identify the best qualified and motivated teacher. And the appointment should be on merit and merit alone. If we compare our selection method of teachers in our colleges and even university departments to well known universities abroad, it would become clear that our system is very poor. Teachers selected on parochial considerations, caste and communal considerations, can never build up a faculty of quality. And a poor quality faculty can never raise the standards of higher education whatever else we may do. So long as our system is secretive and closed as opposed to the generally open system of selection that prevails in advanced countries, recommendations and influence can and do work. Even when the selection is fair, there is no confidence in it. We have the system of outside experts who interview candidates for ten or fifteen minutes and take decisions, either for or against.

Our system of one year probation period is too inadequate to determine whether a teacher is fit or not to get a permanent appointment. He must be judged not by the head of his department alone, but also by his peers and even by his students. Student-reaction surveys is a method employed by some well known universities in the West. Opinions of senior faculty members and publications, both research and popular, are given due weight. Often, initial appointments are on a contract basis, for three to five years, and confirmation at the end of the period of earlier is on proved merit. In the Soviet Union even senior faculty appointments are made for a period of five years every time and reappointment depends on satisfactory work during the period. Harvard University has a system of giving the initial appointment for three to five years and no extension is given at the end of the period. The candidate gets a higher position or he is obliged to leave the University at the end of the period.

There should be no promotions on the basis of only service. A promotion should be earned on the basis of one's quality of work on reasonably long period of time. Automatic promotion at the end of completing a period of service has made our teachers lazy, indifferent and unmotivated. Student-reaction surveys, research, publications (publish or perish is a Harvard dictum), participation in professional conferences etc., are important indicators of a teacher's standing as a competent member of the faculty.

The Examination System

Our present examination system has become counter roductive. The undue emphasis on it, the mechanical onduct of it and the publicity given to those who top very examination from S.S.L.C. upwards, have made our teaching simply an examination-oriented exercise. It is only in our country that examinations are conducted in such secrecy as if secrecy is the whole purpose of examinations. Unless we dismantle the present system of examinations and install in its place a system of evaluation which makes regular periodic assessment of a student's progress, we cannot get the desired improvement of the system. Semester system is an essential prerequisite for the introduction of a continuous evaluation system. In the advanced countries of the West, in most cases, the teacher is himself the examiner, but the system is quite open. The answer books are available for inspection and every student can discuss the grades given to him by his teacher. In fact, a great deal of learning takes place during these discussions. Every teacher has an office and has to have regular office hours when he is available to the students. Is it not possible for us to introduce a similar system?

Declining Standards

That the quality of education has deteriorated almost beyond repair is evident from the value given to degrees of Indian universities by those in the West. Hardly a Master's degree of an Indian university is recognised equivalent to that in any western university for admission to a research degree. The candidate has to put in at least one year's regular study at graduate level and sometimes even two years before qualifying to register for a Ph.D degree. Even African countries do not give the face value to degrees from India, so much so, that many college lecturers from India have to satisfy themselves with appointments as school teachers in those countries. The UGC Committee of Vice-Chancellors pointedly remarks that the quality has suffered in a large number of institutions, particularly the colleges where 85 per cent of the undergraduates and 55 per cent of the postgraduates study. "The islands of excellence are few in each subject", bemoans the Committee. The Association of Indian Universities has recommended that the primary objective of a national policy on education is to enhance quality of education, maintain national and international standards and establish relevance of education to societal needs.

The decline in teaching and research standards might have been due to the phenomenal growth in the number of universities and colleges; from 17 at the time of Independence to over 160 by 1987; from around 400 to over 6000 colleges today. Because of the explosive growth in the more lucrative administrative, management and scientific services, adequate talents could not be attracted to the teaching profession. The migration of a large number of highly talented scientists and social scientists to the attractive international academic markets abroad has also accentuated the problem. These are, however, only partial explanations. The key factor which accounts for this steep fall in higher educational standards in India as a whole is the politico-democratic process which has unfortunately contributed most to devalue higher education. The establishment of universities and colleges is not looked upon as a conscious effort to set up centres of academic excellence which will act as instruments of national development. They are being established in widely varying areas under narrow political compulsions, to demonstrate tangible achievements of the party in power and are conceived as a vote-catching device at the time of elections. They are also being treated as a source of employment to a large number of otherwise unemployable postgraduates who have no commitment to teaching and research. Further, these colleges and universities are started without adequate resources and hence they never take off. Most of them lack qualified teaching staff and basic facilities. It is estimated that there are two thousand or more of such substandard colleges in the country. Thus politics and poor quality postgruadates have jointly played havoc with the quality of higher education.

What is the remedy? As a first step there should be a moratorium on new colleges and universities at least for the next ten years. Number versus quality and excellence, should become our challenge during the next decade.

Party Politics in Campuses

The time has come to banish party politics from the college and university campuses. For the introduction of party politics in the campuses two political parties should share the bulk of the blame, the Congress Party and the Communist Party. They were the first to bring party politics into the campuses and others followed suit for sheer political survival. Except Bangladesh and Srilanka there is no country in the world where the Indian type of party politics exists today. In the advanced countries of the West or the Communist countries, there is no political interference in the day-to-day running of schools, colleges and universities. Political patronage has no place in the appointment or promotion of teachers. Politicians in those countries are educated and they consider education as a means for human resource development, not only in words but in true spirit. They do realise that in the modern world of high competition and high technology, high quality education is essential for the survival of a nation. Hence they are constantly emphasising excellence in education and are prepared to provide adequate funds for assuring excellence. This is in utter contrast to the situation in our country, where many politicians and political parties regard colleges and universities as instruments of political advancement, as nurseries for recruitment and developing their followers or as places where they can do favours to their friends and relations.

Banishing party politics from educational institutions, however, is not an easy task. Vested interest among political parties and students who have no motivation to study but indulge in political party work, has gone so deep that any suggestion for such banishment will face the stiffest opposition. Hence the problem has to be solved on a national basis, by working out a consensus among all political parties or most of them. Once such a consensus is evolved, a code of conduct could be formulated and implemented. As a part of this code, students unions of the present type should be abolished, present type of elections discontinued and students' participation in the curricular, co-curricular and other activities should be constructively channelised. The country has to work towards a political will that will achieve these objectives step by step over a reasonable period of time.

University Autonomy

At the time of Independence and during the next two decades, the concept of university autonomy was well understood and practised. Beginning with the third decade after Independence started the erosion of university autonomy in the context of a mushroom growth of substandard colleges and universities and the politicians playing a major hand in capturing and controlling the university administrations. Frequent changes of governments in many states was a major contributory factor. Every new State Government wanted to appoint its own nominees as vice-chancellors and other key functionaries in the universities. Universities became a major sphere of political patronage. In order to facilitate this existing university acts were amended, ministers were made Pro-chancellors, authority was vested in the Government of the day to constitute or reconstitute university authorities. Nominations of members of these bodies were not made on merit, academic or professional but largely on the basis of political clout. It became a normal pattern of practice in many State universities to nominate political party representative on the Syndicates or Executive Councils, the Senates and even on the Academic Councils and Boards of Studies. Appointments of vice-chancellors became a prerogative of the State government and depending on the colour of the government, red, pink, green or white, the vice-chancellor was carefully chosen depending on his known preference of the colour. There is perhaps no functionary in India today whose position has been so devalued as that of the vice-chancellors of State universities. This is another area where a political consensus is required to re-establish university autonomy and strengthening the office of the head of the university. The most prestigious universities in Europe or the USA should give us any number of examples to emulate if we are interested and sincere in this reform.

Simultaneously, there is need for a radical departure from the present structure of the university system. We have already effected structural changes with the establishment of the Indian Institutes of Technology. A corresponding change is called for in the structure of the universities as well.

The Affiliating System

The affiliating university system which has a history of nearly a century and a half has outlived its utility as a higher education system. It has become irrelevant and counter productive. It was the University of London which provided the model for the British to establish the first three universities at Bombay, Calcutta and Madras. But the London University has discarded the affiliating system years ago; but we not only cling on to that system today but go on adding more and more of that type year after year! With the creation of teaching and research departments as integral parts of the affiliating universities, their original purpose and character have been largely lost. The affiliating-cum-teaching university of today is unable to perform well either as an affiliating university or as a teaching university. It is so preoccupied with its own internal problems that it has very little time to exercise the right control over the affiliated colleges and maintain proper academic standards in those institutions. The colleges are left without proper and effective academic leadership, guidance and supervision. The situation has been further aggravated with the explosion of student population and proliferation of colleges. There has been a mushrooming of substandard and non-viable colleges in all sorts of odd places in the most uncongenial environment bringing down academic standards as well as making it impossible for the university to exercise even a modicum of control and regulation.

The impact of the affiliating system on the university itself and on its own teaching and research departments has been equally deleterious. It is not able to do full justice either to the colleges or to its teaching and research departments. Caught in the quagmire of examinations, degrees and diplomas and enshackled by routine roles, rules and regulations, the affiliating universities are not in a position to devote adequate time and resources to improve the quality of teaching or research in their departments, nor do they possess enough dynamism and resilience to lead the colleges along the path of progress and academic excellence. Since the affiliating-cum-teaching system has ceased to be academically creative and useful and has become administratively unwieldy and ineffective, the search for a suitable alternative system is urgently called for.

As a first step, the present affiliating-cum-teaching universities should be subjected to a separation of functions which means either affiliation function or teaching and research function only. The next step should be to delink one after another the well-established colleges from the affiliating university and make them autonomous colleges. It should be the aim of the university to nurse the non-autonomous affiliating colleges in such a manner that within a reasonable period of time they can also become autonomous colleges. Ultimately, conduct of examinations should become the responsibility of the colleges and not of the university. The university may give leadership in generating ideas and projects, coordinate common programmes and provide facilities for training teachers and academic administrators.

Training of all categories of personnel in the university system has become an important new function of universities.

Parents and the Public

Many colleges have at present organisations in which parents, teachers and students are supposed to work together. But most of them are ineffective. Most parents take a passive attitude and play a subdued role, if at all they enter the arena. A strengthening of the parents' involvement in college affairs is essential to make their functioning better. Parents alone are not enough in this process. Prominent members of the public also should be brought into the picture and made to play a significant role.

It is not often recognised that a college or university has a social responsibility. As a part of this responsibility students and teachers should undertake community development programmes on a planned basis and create an impact on their neighbourhood. I would even advocate a system of compulsory community service for all those who enter the college for a period not less than a year. Such a system would instil in them a sense of discipline and service. There are many areas of development such as promotion of literacy, slum clearance, tree planting, construction and maintenance of village roads and parks, holding of rural fairs and exhibitions and maintenance of recreational facilities. The leadership role that is played by a college in such activities will not only make it a true leader of the community around it but will also facilitate the students to get a first hand knowledge of the problems of the community and equip them to face the problems of life better when they come out of the institution on the completion of their studies.

Perestroika in higher education is bound to be a painful process in India as it will face myriad problems. There is however no alternative for it if we want to reform the present rotten and discredited system. ☐

CD-ROM TECHNOLOGY — A LIBRARY PERSPECTIVE

E. Rama Reddy*
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Man thrived by miniaturisation of his artifacts since beginning. This phenomenon is clearly visible in reading and writing materials of men of antiquity. When there was a need to transmit a message, stone tablets were used in early days of civilization. Later on, the styles of reading and writing shifted to palm-leaf and skin and towards the 15th and 16th century to paper. The efforts of miniaturisation continued further to produce Microfiche, Microcard, Microfilm, Ultrafiche etc., during the 1950's. These micrographics required additional equipment to read them. In spite of the dependence on an additional equipment, the micrographics production forged ahead because of the cheaper production rates, storage and transportation costs, reproductivity in bulk, longevity of the material etc. The requirement of additional equipment, to read, was also taken as an advantage to maintain some sort of secrecy of the contents of the documents.

Similarly in the computer age the first system similar to computer called "difference engine" and the "analytic engine", which occupied a few rooms of space was invented by CHARLES BABBAGE (1791–1871). Later on Howard Aiken, invented "Mark-I" in 1944, Mauchly and Eckert built "ENIAC" in 1946 and "UNIVAC-I" in 1951 in quick succession. Each of them occupied less space and were capable of doing many functions, faster and able to run high level languages. The technology of production by 1980's shifted from valves to transisters to integrated circuits reducing the size of the computers to table top at the end.

The trend in the primary and secondary storage devices also continued on the same lines. By 1970's the 8 inch diameter single side single density diskettes almost replaced the long wound magnetic tapes and punched cards in certain areas, storing 360 Kb (360,000 characters) of data and now the new industry standard 5.25 inch diameter diskette is storing 1200 Kb (1,200,000 characters) of data. The winchester disks of book size are storing 20,000 Kb (20 Mb) to 80,000 Kb (80 Mb) of data.

CD-ROM

CD-ROM (Compact Disk-read only memory) technology is rapidly changing the way information is handled and transferred. It is important that people involved in manipulating large amounts of information understand what this technology is, how it works, and how they can use it.

The CD-ROM disks are compact and indeed a breakthrough in the storage capacities of computer readable storage devices. A CD-ROM disk 12 cm (4.72 inch) diameter and 1.2 mm (0.5 inch) thickness can store data in the range of 250 Mb (250,000 Kb) to 700 Mb (700,000 Kb). The average data stored is around 550 Mb (550,000 Kb) equivalent to 250,000 printed pages or 250 big books, equivalent to the contents of 1500 standard 5.25 inch floppy disketts. The Encyclopaedia Britannica, or Encyclopaedia Americana or Oxford English Dictionary can be accommodated on a single disk, which can easily be placed into the pocket of a coat and is scratch free.

The information is written into the disk with a laser, which burns pits and flat areas (representing binary digits) onto the surface. The information is written in the continuous spiral nearly three miles long. This disk is then encased in a tough coating made of the same material found in bullet proof windows. Once a master is made, copies are made out of it and it costs around US Dollars 10,00. Once the disks are mastered the information cannot be changed.

At present a number of database products are available in CD-ROM form. These include (1) ERIC (2) CAB abstracts (3) Cambridge Scientific Abstracts (4) AGRICOLA (5) Bibliofile (6) Compendex (some portions only) (7) NTIS (8) MEDLINE (9) EMBASE (10) SOCIOFILE (1974–1989) (11) Micromedex (12) ASFA (Aquatic Sciences and Fisheries Abstracts (1982–1989) (13) LISA (14) OCLC, etc., covering 4 to 5 years cumulative data along with required indexes.

In addition to the traditional A & I Periodicals: RR Bowkers, 'Books in Print' along with 'Subject Guide to Books in Print, Forthcoming Books, Childrens Books in Print' and Subject Guide are available on one disk with relevant indices. 'Ulrich's International Periodicals Directory, Irregular Serials and Annuals, International Serials Database Update' are also available on a single disk. Again, a multilingual dictionary covering the publication of seven publishers, providing meanings to German, Spanish, French, Dutch, Italian, Chinese, Japanese words to English and vice versa is available on a single disk. The number of products

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** I/C. University Librarian and ** Documentation Officer, University of Hyderabad, Hyd* being offered are increasing at a very fast rate. Thus the list can only be representative and not exhaustive at any time.

Sources

Presently CD-ROM disks and drives are manufactured by M/s. Philips, Hitachi, DEC, SONY, TOSHIBA and others whereas data is written by Silver Platter, DEC, Library corporation, BRS, CSA, Disclosure, DIALOG etc, The production of Master copy with capabilities for efficient searching is the main job of the CD-ROM disk writers. In addition they provide software support to disk drives to run and retrieve data. The use of this technology allows search of databases quickly in variety of forms and means which were not possible with printed publications.

For example, we can search a book in BOOKS IN PRINT by author, Jt. author, Title, Subtitle, publisher, series, ISBN etc., or a combination of any of these with boolean logic. It is also possible to browse through the contents serially or in a classified order. Further it is also possible to produce catalogue cards in LC-MARC format for the desired publications or print variety of lists after the search by using standard software and functions.

CD-ROM Disk Drives

A special disk drive is used to read the CD-ROM disks. These drives are attached to a personal computer like any other peripheral device, such as a printer or standard disk drive. The price of a compact disk drive has fallen dramatically since the technology was introduced.

CD-ROM products are currently being used almost exclusively in libraries, corporation and information centres in the developed countries where large amounts of texts/data must be easily accessible and rapidly manipulated. The libraries are using this technology because of the availability of important and large database on single CD-ROM. These databases, offer an attractive alternative to online databases. Several millions of full catalogue records of OCLC data base (largest library database) is now available in six CD-ROM disks. Some of the databases can be subscribed to without worrying about telecommunication charges, royalty fees or connect changes etc. The number of databases on CD-ROM are growing. The prices of the databases on CD-ROM varies greatly, but the costs are falling over the period.

CD-ROM disk drives are being manufactured by Philips CM 121, CM 201 Hitachi CDR 1502S, CDR 1503S, 2500, 3500; DEC RRD 50; SONY CDU 100; Toshiba XM 2000A; the prices ranging from £ 825 to £ 1200 depending on the make of the CD-ROM. These CD-ROM disk drives can be attached to a number of IBM-PC compatible computers like IBM, IIT, WISE, NCR, AT&T, Zenith, Xerox, EPSON, Olivetti etc., but at the same time the new release of IBM PS/2 cannot run most of the CD-ROM drives. It will take some more time to achieve a complete compatibility between all the makes of personal computers and variety of disk drives and software companies.

Usually to use a CD-ROM disk a personal computer with the following minimum configuration is required.

1. An IBM Compatible personal computer with operating system MS-DOS 3.1 and above.
2. A memory of at least 650 Kb.
3. A Winchester disk of minimum 20 Mb size.
4. A CD-ROM disk drive (laser drive) with necessary interface.
5. A software to read the contents of the disk.

Software

A number of software companies have produced a variety of products to read the CD-ROMs pertaining to specific databases. For example, Silver Platter has developed software to search ERIC, NTIS, MEDLINE etc., where as Cambridge Scientific Abstracts/Disclosure has developed software of MEDLINE and ASFA etc. These companies have experienced in working with a few IBM-PC compatibles upto this time. But the experience shows that they can be easily hooked to almost all the IBM compatibles. Usually the software developed is partially put on CD-ROM and rest on computer system used. The software also takes advantage of the facilities available on disk drives, though also dependent on make of disk drive. The CSA/disclosure software does not run on Toshiba make disk drives whereas it can run on Hitachi or Philips made drives. As mentioned earlier there are problems in running CD-ROM drives with the new release of IBM PS/2 system. It may take 6–9 months time for the disk drive manufacturers to build compatible interface cards to suit the PS/2 system.

Prices

The prices of CD-ROM disk drives are coming down fast. At present a typical CD-ROM drive will cost in the range of £ 825 to £ 1200. The price will further go down. Some cost saving packages are being announced for committing the subscription to CD-ROM disks or to their printed or microform equivalents or original documents. The NTIS database for 1983 to 1989 is priced US Dollars 2,750 and Ulrich's Plus at £ 375. Sociofile 1974–1989 is priced US Dollars 2,145. The initial production cost of the CD-ROM Master disk is high. The duplication cost of a CD-ROM is very low, due to stamping, as the subscriptions increase the prices have to fall down much below the printed equivalents depending on the pricing policy of the publishers.

Database Searching

Unlike the magnetic tapes which are in vogue in India and other developing countries, the CD-ROMs have a distinct advantage over them. The magnetic tapes etc., contain only the main records of the database and do not include the various indices possible to be generated with them. It is essential to write specific software to create such types of indices and search them, which consume lot of mainframe computer time. Each batch of data received has to be made ready for search and output. The CAN/SDI is one such software used for the purpose. The total process is very slow, as records are available only sequentially and access depends on mechanical winding of the tape. The total data stored is also much less compared to CD-ROM.

In CD-ROM the software is built along with the disk and is resident along with variety of indices required. Thus time for preparing a given disk for searching the data is nil. And it is searchable on PC XT/AT which are available in many libraries. Alternatively it can effectively use the free time available on those personal computers to bring efficiency to the total system. Thus it opens a new era of database searching, available just in the premises of library.

Advantages

It is easy to handle CD-ROM disk as it is scratch free, can be handled with bare hands without the fear of loss of information. Because of its ability to store large amounts of data, CD-ROM is also an ideal medium for distributing shared databases or card catalogues, etc. It has an easy mailing format, that is easy transport, packing and safety. It is highly economic and reliable mass storage device and has highest data integrity. It is only possible to read data available from the disk but cannot replace or alter the data. Copying data from CD-ROM on the other forms is costly and difficult. The cost of replication per disk due to stamping is very low. The major advantages being the enormous reduction of storage space high flexibility of searching and output.

This advantage itself give rise to pick up CD-ROM disks of selected databases which are frequently used in a given library to get rid of printed A & I publications which will save enormous space. The average price of CD-ROM disk is almost equal to its printed equivalent at present but certainly can go down in the years to come.

CD-ROM allows searching of large databases of text, bibliographic or statistical information quickly and economically. This ability to search and process huge quantities of information will allow Libraries to provide more information to many Library users, and that is why it is important for librarians to understand CD-ROM technology.

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MASTER CONCEPT FOR EDUCATIONAL POLICIES

(Continued from page 1)

is an on-going challenge. It is the basic reason determining the need for continuous education of all people".

This realization has resulted in a number of ways of keeping oneself abreast of what is happening all around. There are numerous techniques adopted for on-the-job training such as conferences, seminars, workshops, symposia and study groups and discussions. There are correspondence courses, home-study courses and courses taught overseas. Besides there are updating courses, refresher courses, training courses, and retraining courses. These pertain to all professionals and workers like teachers, doctors, lawyers, journalists, engineering, druggists, policemen, administrators, business magnates, foremen, industrialists and even housewives and house-maids.

However, in a country like India, the need for the continued education of workers and professionals is likely to be felt much more in the future than at present. Increasing stress on technological advancements is likely to better the prospects for change of careers in one's life. This necessitates retraining as well as upgrading of the skills of persons in various walks of like.

Life-long education has, therefore, to be taken as the major goal for framing educational policies at different levels from the Primary School to the University. The responsibility of promoting life-long education not only rests with the educational institutions but extends to many agencies—the institutions for professional training, press, magazines, radio, television and the community at large. Thus, both the formal and informal agencies of education have to rise to the occasion by making necessary changes in their policies and goals, and prove their mettle in meeting the challenges posed by life-long education.

Quality and Standards

"Your open universities have in the short time of their existence facilitated quantitative expansion. The essential question now is to ensure quality…. There can be no substitute for quality. We must not rest until it becomes the norm rather than the exception", said Dr. James A. Maraj, President, Commonwealth of Learning, Vancouver (Canade) while delivering the Convocation Address at the Fourth Convocation of the Andhra Pradesh Open University. He, however, struck a note of caution when he said, "but let us not confuse quality with standards, for the latter often implies an external frame of reference. Quality can be high without necessarily reflecting all of those features which others deem essential" Excerpts

Convocation

Although it is India's first open university, it is still less than 10 years old and as universities go, it is very young indeed. Already it has made a significant impact, bringing higher education to thousands who, but for Andhra, would never have had that opportunityh. But it is a new kind of institution—an OPEN university—and as such still subject to scrutiny, assessment and evaluation in ways that conventional institutions are not. For open learning and distance education are not yet in the mainstream of educational thought and practice, and there is an inevitable tendency in many quarters to regard such forms of education and training as "second best"—if not "second rate". Branded as you are with the APOU stamp, the judgements made of you will be somewhat severe, ever harsh. The way you perform and conduct and acquit yourselves will either reinforce in the minds of those who judge you thier own preconceptions or win a measure of recognition for yourselves and the University. I very much hope it is the latter. You are not alone, however, for thousands of others here in India and in other parts of the world confront the self same situation. Conventions die hard. Most of today's decision makers and power brokers are products of conventional systems. It will be some time before institutions such as this and graduates like you, receive the regard and recognition they deserve. Take heart, nonetheless, for no country in the world today can adequately respond to the demands for greater access to quality education by continuing to rely on conventional approaches alone. Distance Education will be turned to more and more. The evidence is mounting. Students in conventional institutions and their teachers are both making increasing use of good quality materials prepared for distance education and independent learning. And initial fears that open universities and open colleges would pose a threat to the established order are being put to rest, albeit gradually. Mixed mode approaches, utilising both simple and advanced technology are being increasingly used in combination with face-to-face teaching and are becoming quite common. Certainly for professional updating and upgrading distance education has an unparalleled role.

The creation of the Commonwealth of Learning by Heads of Government just over one year ago with a mandate to promote the development of human resources through the application of distance education techniques has been heralded as a major development on the international scene. Our efforts so far have not been without frustrations but we are confident that we will succeed for we are indeed, an idea whose time has come. Among my colleagues in Vancouver is a former Vice-Chancellor of this University, a stalwart who has been in the vanguard of distance education developments both in this country and further afield. I am happy to recognise Prof. Ram Reddy who is with us here today. He brings considerable experience and expertise to the wider Commonwealth stage. I know that with his help, as Vice President of COL, we can and will make a difference.

Your open universities have in the short time of their existence facilitated quantitative expansion. The essential question now is to ensure QUALITY. That is more difficult, of course, and it is in this regard that the Commonwealth of Learning, which I am privileged to lead, will seek to join hands with you in enhancing what you offer to your people. There can be no substitute for quality. We must not rest until it becomes the norm rather than the exception. But let us not confuse quality with standards, for the latter often implies an external frame of reference. Quality can be high without necessarily reflecting all of those features which others deem essential. If I may be so bold, let me say that it is time India manifests greater confidence in its own values and in its own sense of worth. You need apologise to no one for doing so.

I said, Mr. Chancellor, that this was a very special occasion not only for the graduating class but also for me personally. This is indeed so. In many ways this visit to India represents a kind of homecoming, with all that that signifies in terms of sentiment and deeply felt emotions. Nearly 150 years ago, my forbears left this ancient land to plant sugarcane in the West Indies. They were simple folk illiterate, unlettered. Theirs was an extraordinary mission! And a poignant story, too, but one, alas, that only a few here know or remember. Through blood, sweat and tears, they contributed to the development and advancement of their adopted homes. They demonstrated remarkable qualities of patience and perseverance, industriousness and self sacrifice so that their descendants might have a better life. (Incidentally these are also the attributes of successful distance education students.) And if today, some of us that lineage are acknowledged and recognised, it is particularly gratifying that that acknowledgement should come from India.

In the district where I grew up the streets were named after major Indian cities—Bombay, Madras, Calcutta even Hyderabad and Cawnpore and while the names Guljari, Etwari and Pirjadi may mean nothing to you, to me they conjure up images of ancestors and relations, long gone, but whose memories you sanctify today in honouring me.

In accepting this prestigious degree which you have so graciously bestowed on me, I pay tribute to the memory of those who left these shores and sweated in the cane fields of Trinidad, Guyana, Fiji and elsewhere in the Empire of yester year. I do so, on behalf of my peers, third generation descendants of those who crossed the Black waters in search of a more fulfilling life but who found instead, indenture and servitude—the scars of which are evident to this day.

Lest I be misunderstood, let me affirm that our loyalty and allegiance remain unquestionably to the land of our birth—to those countreis where our real roots are and where we, like our ancestors before us, make our lives and have our being! Unlike our ancestors we do not hark back to India (to the Molook they knew and revered) for we are and must remain West Indian, Fijian, Mauritian, or East African as the case may be. On that there can be no compromise or equivocation. Not to regard India, however, as something special would be to dishonour our antecedents and to reject history as meaningless.

India is indeed a special place, a legendary land, one that has given much to the world. Your achievements since Independence, just 43 years ago, cannot but make you proud. In every field of human endeavour the advance has been remarkable. That progress has been due to the genius and devotion of its people. Now a new leap is called for as the new millenium approaches. Every talent must be drawn upon, every resource exploited. It is not enough to look back with pride! India needs to look forward with confidence, secure in the knowledge that its young with whom we share today's honour roll, possess in even greater measure, the same qualities and attributes that their forefathers demonstrated at home and abroad, in making this republic not only legendary but truly great in the contemporary world.

Much is yet to be done. Put your hands to the plough and your hearts and minds to the challenges ahead. Look forward with your faces to the sun and let the shadows fall behind you. May success crown your every effort and peace, progress and prosperity attend you.

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Rural Extension and Evaluation Cell

The Gandhigram Rural Institute (Deemed University) started a Rural Extension and Evaluation Cell in the year 1989. Funded by the UGC, this cell aims at evaluating the extension activities of the various departments in the villages of Gandhigram Rural Institute's (GRI) service area. Other activities of the Cell include:

(i) Carrying out benchmark survey in order to develop a frame for future evaluation and monitoring of extension programmes and activities related to upliftment of the villagers in its service area to start with and in the years to come for all the villages in Dindigul Quaid-E-Milleth District.

(ii) Gathering and updating of data on social, economic, demographic, cultural and other aspects of the households periodically, first in the villages of the service area of GRI and later in all the households of the 14 Blocks of Dindigul Quaid-E-Milleth District.

(iii) Developing contextual indicators of change and development for the villages and listing them on a rank order of growth.

(iv) Assessing the content and degree of change (that has occurred) in the villages consequent on the Block Development Programmes, Voluntary Agency and extension activities of GRI in the selected villages.

(v) Evaluating the existing extension activities of various departments, and, if necessary, to suggest suitable modifications.

These activities are proposed to be carried out through a network of information system. The data gathered or observations made in the field with the help of investigators will be transmitted to the proposed Documentation Centre where they will be stored, after processing at the appropriate levels later according to demand. This will be facilitated by the Institute's computer centre. The information collected will be brought up-to-date periodically. Also longitudinal and follow-up surveys of households in the villages will be undertaken to predict changes and assess development consequent upon the implementation of various block development programmes and extension activities of the Institute.

The Documentation Centre is expected to act as a repository of classified information about the villages for use in research in Rural Development, for providing a factual base to government departments to facilitate micro-planning and to NGOs in their developmental activities.

Refresher Course in Jurisprudence

The Faculty of Law, Lucknow University, under the aegis of the Lucknow University Academic Staff College, organised a four-week Refresher Course in Jurisprudence. In his inaugural address Professor S.P. Nagendra, former Vice-Chancellor, Lucknow University and a noted sociologist dwelt at length on the nature of relationship between law and society. Extending the Ciceronian notion of *Prudentia juris,* Professor Nagendra expressed his belief that the morphology of Jurisprudence could best be evolved through a creative interaction between ethics and sociological pragmatism. The ontology of Law itself subsumes the putative condition of systemic and non-systemic variables. Austin's taxonomy of the general and particular jurisprudence was, therefore, an effort to reconcile the static and the dynamic components in the philosophy of law.

Professor H.K. Awasthi, Vice-Chancellor, exhorted the participants to ensure the dignity of their discipline so that the roots of democracy could be strengthened in our country. He expressed his satisfaction with the activities of the Academic Staff College that had launched a vigorous programme of intellectual engagement on the campus, and had already achieved significant record in teacher-education.

Professor L.N. Mathur, Dean, Faculty of Law, dwelt upon the complexities of the subject of Jurisprudence which tries to respond to the everchanging dynamics of sociological forces. He gave a call for evolving a new Jurisprudence to face the challenges of the twenty-first century.

Forty participants representing eighteen Universities in the North Zone (including N-E states) participated in the programme.

Library Management Workshop

University Grants Commission (UGC) published INFLIBNET—Information and library networking—a project report of the inter-agency group in December, 1988. This document was prepared for study and implementation for bringing effective and efficient library cooperation amongst libraries in India. As a follow up, the North Gujarat University organised a Library Management Workshop of its affiliated college librarians at the University Library, Patan in June, 1989. Two regional workshops one at Mansa and second at Unjha were also organised to train and retroin the existing librarians in AACR2 and D.C. 20th Edition.

The second workshop was organised from 15th May to 17th May, 1990 at which 20 college Librarians attended and participated with a will to achieve something tangible by implementing INFLIBNET at the college and university level; thus connecting college libraries and university library.

A working paper on INFLIBNET was presented by Mr. H.C. Mehta, University Librarian. The participants while discussing the paper, aquainted themselves with the problems and challenges in modernising the libraries and information system. The discussion was followed by screening of video cassettes on 'Computer Literary' and 'Information Processing System'. In the concluding session video cassettes (1) Now or Never—discussion on training and retraining; (2) Listen—listening is a vital personal communication, received from British Council Library, Bombay were also screened.

New Outlet of Science

Prof. R.P. Rastogi, Vice-Chancellor of the Banaras Hindu University, delivered the third Dr. Atmaram Memorial Lecture in Allahabad recently. Speaking on 'Order out of chaos-New Outlet of Science' Prof. Rastogi said that in the second half of this century, science had made rapid strides in understanding more and more complex system in more and more complicated situations.

Prof. Rastogi noted that new developments had taken place in thermodynamics, Kinetics and statistical mechanics in non-equilibrium situations where variety of exotic phenomena like chemical oscillations. chemical waves, multistarility, membrane oscillations and chaos are observed. An entirely new science of complexity had been developed and most exciting thing to be noted was that even chaos could be deterministic, he added.

He said that the finding was exciting since it could explain meteorological as well as social and economic phenomena. Non-equilibrium processes had stimulated the study of irregular objects which led to the development of the concepts of 'Fractal Geometry'—a non Euclidean concept. The new paradigm itself was leading to unexpected developments in various fields of knowledge, he concluded.

The prestigious lecture was organised by the The Science Council of Allahabad in Mure College Campus in memory of distinguished Scientist Late Dr. Atmaram who was a Director General of the Council of Scientific and Industrial Research (C.S.I.R.).

News from Agril. Varsities

Role of Bio-Mass Fuels

A 3-day International Symposium on "Application and Management of Energy Agriculture—the role of Bio-mass Fuels" concluded recently at New Delhi. Dr. A.P. Bhatnagar, Director, School of Energy Studies for Agriculture at Punjab Agricultural University and Organising Secretary of the Symposium, who released the recommendations of the Symposium, said that the Symposium recommended the creation of Energy Planning Cell and establishment of Board of Non-conventional Energy for every State for planning and promoting power generation from bio-mass and other non-conventional energy sources. It also recommended the setting up of an Energy Conservation Council for every state which should have powers to enforce the energy conservation and utilization plan. The Symposium recommended increased use of bio-mass fuels for alleviating the serious problem of build up of carbon dioxide in the atmosphere from excessive use of fossil fuels. By another recommendation it stressed the need for exploring the use of waste-land for energy plants. It also recommended that more emphasis should be laid on energy management in agriculture production and processing aimed at increasing the efficiency of energy use and on the development of efficient bio-mass conversion processes and field testing of bio-mass energy systems. Another recommendation of the Symposium was that fuel cells, green cells and other modern technology needed further research and commercial development. The Symposium further recommended that adequate funding should be provided to continue and expand the important research projects in bio-mass fuels. It also recommended that further efforts were needed to standardise the methodology in energy, modelling and audits. Steps should also be taken to ensure employment of graduates specialising in energy science and technology.

Bio-mass has many uses including animal feed, fertilizer, soil organic matter and energy feed stocks. The Symposium recommended end use categorization and technology assessment to ensure that increased use of bio-mass for fuel does not adversely affect other end users of biomass.

The Symposium organised by the School of Energy Studies in Agriculture of PAU in collaboration with the FAO of the United Nations, Indian Council of Agricultural Research and many other national and International organisations was attended by more than 125 energy scientists and engineers from India and abroad. More than 50 energy specialists from USA, UK, Sweden, Finland, Mexico and

Thailand, participated in the Symposium.

Deliberations of the seminar were held in seven technical sessions devoted to: (i) Country and World overview; (ii) Energy Management in Agriculture; (iii) Energy Audit, Modelling and System Analysis; (iv) Bio-mass Fuel Characterization and Handling including harvest, pre-treatment, storage and transport; (v) Gasification and Pyrolysis of Bio-mass; (vi) Liquid Fuels from Bio-mass; and (vii) End Use of Bio-mass Fuels.

Water Resources Management

A seminar on the Role of Water Users Association in Water Management and Crop Production Technology and Water Resources Day 1990 was jointly organized by the Mahatma Phule Agricultural University (MPAU), Rahuri and Centre for Applied Systems Analysis in Development (CASAD), Pune. Dr. S.K. Dorge, Vice-Chancellor of MPAU, presided over the function. In his presidential address Dr. Dorge reviewed the water resources available in Maharashtra and said that only 13 per cent cultivated area was under irrigation. He said that as per Planning Commission's report the productivity of land was only 5 tone per hectare per year, while that of Maharashtra was only 2 tons and in Dryland it was only 1.2 tons. While analysing the reasons of low productivity, he said that it was due to loss of irrigation water through canals, lack of adoption of improved farming, scheduling of irrigation water which was not as per requirement of crops and lack of participation of users in management of irrigation water. However he said that production could be increased if the users adopted better water management practices. Dr. Dorge suggested that involvement of farmers in water distribution and management by way of co-operative societies.

Dr. A.B. Joshi, Ex-Vice-Chancellor, MPAU, who was the chief guest, said that farmers' participation in water distribution and management was very necessary. He emphasized the need to collect accurate information and data on various aspects of water management, socio-economic behaviour of farmers and such other surveys and evaluation in irrigated areas.

Explaining the background of organizing this seminar, Shri R.K. Patil, CASAD, Pune, said that problems of water planning, management and distribution could be solved by farmers participation. He referred to the work being done by Shri Datta Water Management Cooperative Society Chanda and said that the experiences of this society would be useful to the policy makers in deciding the future course of action.

Plant Breeding Research

Dr. R.S. Paroda, Deputy Director General (Crop Sciences), Indian Council of Agricultural Research recently inaugurated a 3-week Summer Institute at the College of Agriculture of Haryana Agricultural University (HAU) on Innovative Methods and Emerging Trends in Plant Breeding Research. Speaking on the occasion, Dr. Paroda advised the plant breeders and researchers to modify the conventional research methods according to the changing requirements of the soil and climate. He said that there was a need for selection of methodologies for developing most satisfying procedure in crop plants that would permit drastic elimination of unpromising plant in early generations.

Highlighting the recent advances in the biological sciences, Dr. Paroda said that molecular transfer of economically valuable genes to important crop plants, and identification and characterization of genes of disease resistant plants were some of the new advancements in biological sciences which could provide great help to the plant breeders. Referring to the benefits in the use of microspores in research methodology, he said that this technique produced results in much shorter time as compared to the conventional means for the development of the new variety. He stressed the need for narrowing the gap between the molecular biologist, and the plant breeders.

University Vice-Chancellor, Dr. Amrit Lal Chaudhry, who presided over the inaugural function said, "India has harvested a record production of more than 172 million tons foodgrain during 1988–89 as compared to only 50.8 million tons during 1950–51. The major credit for this goes to the improved varieties. However, the future of the hungry world is at stake because of the ever increasing population. According to National Commission on Agriculture, India would need 225 million ton foodgrains by 2000 A.D. to feed its population. To achieve all this, plant breeders have to make all out efforts using innovative breeding methods to develop varieties which can give still higher productivity."

Summer Institute on Pest Management

A 10-day Summer Institute on "Insect Pests of India: their bioecology with special reference to Integrated Pest Management" was recently inaugurated at the Punjab Agricultural University. In his inaugural address Dr. K.S. Nandpuri, Director of Research, PAU said that the excessive use of pesticides posed several problems such as environmental pollution, residues, appearance of secondary pests, health hazards and mortality of natural biocontrol agents. He pointed out that the use of pesticides should be reduced to a level which did not affect production levels. This would be possible only, he said, if we stressed Integrated Pest Management as this system was free from all ill effects of pesticides. He hoped that the summer institute would come up with positive steps in this direction.

Welcoming the delegates Dr. H.S. Rataul, Professor and Head, Department of Entomology, hoped that the interaction between the experts and the young scientists in this institute would enrich the knowledge of farm scientists and would prove helpful for tackling pest problems in India.

Organised by the Department of Entomology with the sponsorship from Indian Council of Agricultural Research, New Delhi, the Institute was attended by thirty two scientists from different parts of the country.

News from UGC

INSAT-1B Programme of UGC

Between 25th June to 30th June, 1990 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 Noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission
6.00 a.m. to 7.00 a.m.

25.6.90

"Photoelectric Effect-III"

"Management Functions and Behaviour Organisation Structure"

"Your Ocean and Mine"

26.6.90

"Plasma Emission Spectroscopy and Metallic Pollutants-II"

"Values in Education-III: Reaching Out"

"New Channels of the Heart"

27.6.90

"Measurement of Strain"

"Images of Women in History-II"

"Genetics: Bridge of Heredity"

28.6.90

"One World One Language-I: Amateur Radio"

"Tribal Art & Architecture of Manipur"

"Appreciation of Literary Forms-I"

29.6.90

"A Talk on Infrared Astronomy"

"Defence Mechanism-VIII"

"Water and Water Pollution"

30.6.90

"Hour USA: DMNI – The New Frontier: Underground Structure"

"The Pursuit"

2nd Transmission
12.00 noon to 1.00 p.m.

25.6.90

"An Enemy Called IZONOS"

"Export Management"

"Importance of Fisheries in Our Life"

26.6.90

"Counselling"

"Camera Aperture"

"Worldnet Medicom – 86 – III"

27.6.90

"Male Reproductive Physiology"

"Lothal"

28.6.90

"Electrical Circuits – III"

"Pastoral for Computer"

"Paninian Linguistics – II"

29.6.90

"Following the Sun"

"India Forgotten: A Philosophical Amnesia"

"This Planet Earth – I"

30.6.90

"Hour USA: OMNI – The New Frontier: Underground Structure"

"The Pursuit"

Varsity Development During Eighth Plan

The University Grants Commission (UGC) envisages to further enhance the Capability of the universities in teaching and research during the Eighth Plan. It has advised the universities to develop linkage with agencies and institutions outside the university system, particularly those which are devoted to research and development in order to make university education more meaningful. The universities will also be encouraged to adopt some of the emerging areas in science and technology that have ample relevance for social and economic developments like electronic science, computer science, biotechnology, oceanography and environment and energy studies.

The guidelines for Formulating Proposals for the Eighth Plan Development Schemes of Universities as approved by the Commission and circulated recently to all universities, envision consolidation of the existing programmes. Priority would be accorded to strengthening of existing postgraduate departments in terms of laboratories, workshops and library services.

The offering of new specialised courses or opening of new departments might be contemplated with an interdisciplinary approach which could be sustained by the existing facilities within the developed universities. In the case of developing universities, opening of new departments would be determined by the overall needs for such departments within the state or region as a whole after taking into account similar facilities available elsewhere in the region and studying the manpower needs. Universities are desired to discourage opening new departments of study with sub-viable level of inputs and inadequate preparation. Courses which have lost relevance or are outdated could be dispensed with and teachers in such subjects retrained.

The guidelines further urge the universities to provide teaching aids to all departments and to produce course packages in major disciplines on video tapes for teachers and students to enable them to keep pace with advances in their fields of specialisation and also in the methodology of teaching. The universities have also been advised to improve the common facilities for students including counselling services and linkages with appropriate employment agencies.

The pattern of UGC assistance to universities for development of undergraduate and postgraduate teaching, and research facilities under the institutional development schemes during the Eighth Plan has been modified. Now the universities will be provided with 100 per cent assistance in respect of library building and women's hostel while for other buildings like laboratories, classrooms, central workshop, green house, glass house, animal house, guest house, boys' hostel, teachers' hostel, staff quarters, canteen building, visiting faculty complex, etc., and establishment/improvement of university presses, health centres and improvement of facilities in existing hostels 75 per cent financial assistance will be extended by the Commission. Earlier the assistance was to the extent of 75 per cent and 50 per cent respectively. The universities will now also receive 75 per cent assistance for campus development including road development, water supply and electricity, etc. There was no provision for such assistance during the earlier plan period. In respect of additional teaching, technical, library and administrative supporting staff, equipment, books and new journals, faculty improvement programmes, extension programmes and services including training, continuing education and cultural activities the UGC assistance will, however, continue to be 100 per cent as in the past.

Monitoring Workshops

The University Grants Commission (UGC) will organise five group monitoring workshops at as many universities during June-July, 1990 to monitor and assess the progress and achievements of 160 major research projects in various disciplines of Bio-Sciences. The Principal Investigators of these research projects will present and discuss their achievements with experts in the specialised fields of Ecology at the North Eastern Hill University, Shillong; Genetics at the Osmania University, Hyderabad; Physiology at the Ravishankar University, Raipur; Applied Biology at the Himachal Pradesh University, Shimla; and Microbiology at the M.S. University of Baroda.

The University Grants Commission has been awarding major research projects in different disciplines to the teachers working in the universities and colleges to enable them to update their knowledge in their specialised subject areas and to promote a research culture in the university system. Recently the Commission has approved 318 new major research projects in Bio-Sciences.

We Congratulate. . .

Shri T.N. Chaturvedi, former Comptroller and Auditor General of India who has been appointed Chancellor of the Lal Bahadur Shastri Rashtriya Sanskrit Vidyapith, (Deemed University), New Delhi.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857–1970 and 1970–75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertion is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A list of Research Scholars registered for Doctoral Degrees of Indian Universities.

SOCIAL SCIENCES

Library & Information Science

1. Damodaram, T. *Education and training for agricultural library and information work in India: A study.* Osmania. Dr. D.B. Eswara Reddy, University Librarian, Andhra Pradesh Agricultural University, Hyderabad.

2. Ramakrishna, D. *National information system for science and technology in India: Objectives, achievements, problems and prospects; a study.* Osmania. Dr. D.B. Eswara Reddy, University Librarian, Andhra Pradesh Agricultural University, Hyderabad.

3. Srinivas Reddy, V. *Financing university libraries in Andhra Pradesh: Problems and changing approaches.* Osmania. Dr. D.B. Eswara Reddy, University Librarian, Andhra Pradesh Agricultural University, Hyderabad.

4. Sugunavathy, C. *Information needs and sources of information of subject matter specialists in the training and visit system of agricultural extension.* Osmania. Dr. D.B. Eswara Reddy, University Librarian, Andhra Pradesh Agricultural University, Hyderabad.

5. Vittal Rao, D. *The role of non-documentary sources of information on communication and information seeking behaviour of scientists and technologists in Bio sciences: A study of select bio-scientific research organisations in Hyderabad.* Osmania. Prof. A.A.N. Raju, Department of library and Information Science, Osmania University, Hyderabad.

Psychology

1. Bagrecha, Y.S. *A study of the possession behaviour and its social psychological significance.* D. Litt. H.S. Gour. Dr. Jai Prakash, Prof., Department of Psychology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Bindu, P. *Correlates of mathematical creativity.* Kerala. Dr. B. Dharmangadan, Prof., Department of Psychology, University of Kerala, Kariavattom.

3. Chandiramani, Radhika. *A study of depression in public and private situations: A clarification of internality-externality effects.* Devi Ahilya. Dr. (Ku.) Usha Krishnan, Prof. and Head, Govt. New Girls Post-Graduate College, Indore.

4. Mishra, Rajni. *The effect of occupational stress on employees' mental health and physical health as well as on the job and off-the job satisfaction.* Devi Ahilya. Dr. (Ku.) Saroj Kothari, Asstt. Prof., Govt. Arts and Commerce College, Indore.

5. Rai, Pramod Kumar. *Psychology of social differentiation.* HS Gour. Dr. Jai Prakash, Prof., Department of Psychology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

6. Rawat, Kavita. *Role of personality factors in the stress effects.* Devi Ahilya. Dr. (Ku.) Usha Krishnan, Prof. and Head, Department of Psychology, Govt. New Girls Post-Graduate College, Indore.

7. Sanker, Seema. *Personality and academic achievement of school pupils as related to school characteristics.* Kerala. Dr. S. Jayakumari, Reader, Department of Psychology, University of Kerala, Kariavattom.

8. Santhoshkumar, P.B. *Certain psycho-social problems associated with the "Gulf boom" in Kerala.* Kerala. Dr. Immanuel Thomas, Lecturer, Department of Psychology, University of Kerala, Kariavattom.

9. Shukla, Manjulata. *A study of the factors contributing to gender identity.* Devi Ahilya. Dr. (Ku.) Usha Krishnan, Prof. and Head, Department of Psychology, Govt. New Girls Post-Graduate College, Indore.

10. Sreelal, A. *A psychological study of orphan pupils.* Kerala. Dr. S. Jayakumari, Reader, Department of Psychology, University of Kerala, Kariavattom.

11. Sreevalsakumar, R. *Problems of adolescence among the mentally retarded and the effect of behaviour modification techniques.* Kerala. Dr. H. Sam Sananda Raj, Reader, Department of Psychology, University of Kerala, Kariavattom.

12. Surana, Rani. *Colour reference and personality characteristics: A cross cultural study.* Devi Ahilya. Dr. (Ku.) Saroj Kothari, Head, Department of Psychology, Govt. Arts and Commerce College, Indore.

13. Sylaja, H. *Criminality of women: An analytical study.* Kerala. Dr. H. Sam Sananda Raj, Reader, Department of Psychology, University of Kerala, Kariavattom.

Social Anthropology

1. Chandar, Ashok Kumar. *Hindu jatiyon. janjatiyon tatha anya samudayon ke antasambandhon ke pratiman: Himachal Pradesh ke ek gram ka manav shastriya adhyayan.* HS Gour. Prof. Samrendra Saraf, Department of Anthropology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

Political Science

1. Awasthi, Pramod Kumar. *Punjab samasya: Ek vishleshnatmak adhyayan.* Vikram. Dr. M.M. Samarwal, Rankavadhyacha Vidharathi Kalayan, Vikram University, Ujjain.

2. Baghel, Durgesh Nandini. *Madhya Pradesh mein virodhi dal ke roop mein Bhartiya Janata Party kee bhoomika: Ek sameekshatmak avlokan. 1980 se 1989 tak.* Vikram. Dr. Shivdayal Goutam, Principal, Govt. Science College, Barwaha.

3. Choubey, Kamlesh. *Bharatiya rajnitik chintan prakriya ko Jai Prakash Narayan ke yogdan ka mulyankan.* HS Gour. Dr. (Smt.) Shobha Shankar. Lecturer, Department of Political Science and Public Administration, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

4. Devtale, Kanupriya. *Gut nirpeksh andolan aur navee antrarashtriya arth vyavastha: Ek adhyayan.* Vikram. Dr. Arun Chaturvedi. Vice-Principal, Govt. Science Laboratory, Vikram University, Ujjain.

5. Jain, Ashma. *Pandit Jawaharlal Nehru kee asanlaganta niti aur uska vishwa shanti per prabhav.* HS Gour. Dr. (Smt.) Shanti Srivastava, Lecturer, Department of Political Science and Public Administration, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

6. Khan, Abdulvali. *Rashtriya andolan mein Dhar Rjya, 1857-1948.* Vikram. Dr. D.K.Biliore. Asstt. Prof., Govt. Science College, Dhar.

7. Mishra, Rajendra Kumar. *Madhya Pradesh mein naveen Lok Sabha aam chunav mein matdan vyavhar: Chhindwara Jile ke vishesh sandarbh mein.* HS Gour. Dr. H.M. Khan, Asstt. Prof., Department of Political Science, Govt. Post-Graduate College, Chhindwara.

8. Nedumpara, Jose J. *A study of the state of political economy and class contradictions in Central Bihar.* Kerala. Dr. G. Gopakumar, Lecturer, Department of Politics, University of Kerala, Kariavattom.

9. Nirmay, Midon. *Bharat-Nepal sambandhon ka rajnitik arthshastra: Ek adhyayan.* Vikram. Dr. H.S. Samrwal, Head, Department of Student Welfare, Vikram University, Ujjain.

10. Parmar, Tara. *Anusoochit jatiyon ke hiton ke liye Dr. Ambedkar ke bhoomika ka adhyayan: Anusoochit jati ka abhimat.* Vikram. Dr. (Smt.) Rashmi Srivastava, Department of Political Science, Vikram University, Ujjain.

11. Parmar, Virender Kumar. *Swatantrayottar Hindi kavya natakon mein rajnitik prasangikta.* Vikram. Dr. P.K. Bhattacharya, Director, Department of Adult Education, Vikram University, Ujjain.

12. Patel, Kanta. *Madhya Pradesh Panchayati raj vyavastha ke antargat adivasi netritva ka samajik, arthik evam rajnitik swaroop 1983 ke nirvachanon ke vishesh sandarbh mein Dahi Adivasi Vikas Khand ka ek anubhavik adhyuyan.* Vikram. Dr. Mahesh Maheshwari, Govt. Science Laboratory, Vikram University, Ujjain.

13. Sharma, Chandrakala. *Bharatiya swadheenta sangram mein Pashchim Nimar kshetra ka yogdan, 1857 se 1947: Dhar Rajya ke vishesh sandarbh mein.* Devi Ahilya. Dr. J.A.L. Noah, Indore Christian College, Indore.

14. Sharma, Snehlata. *Naveen Loksabha chunav mein matdata vyavhar: Rajgarh Jile ke sarvekshan per adharit.* Vikram. Dr. (Mrs.) Nisha Vashisht, Principal, Govt. Science Laboratory, Ujjain.

15. Shelom Prakash, I. *Genises and maturity of ethnic crisis in Sri Lanka: A geo-political perspective.* Kerala. Prof. C.S. Somarajan, Raj Bhavan, Near the Telephone Exchange, Kundarau P.O., Quilon.

16. Shinde, Deepa. *M. P. Police mein bharti, prashikshan, padonnati ke sandarbh mein police karmiyon mein vyavsayik santosh ka adhyayan.* Vikram. Dr. (Mrs.) Rashmi Srivastava, Vice-Principal, Govt. Science Laboratory, Vikram University, Ujjain.

17. Vanvan, Shankar Lal. *Jila nyayik prashasan ka vartman swaroop trutiyan evam unke nirakaran ke sambhavit upaya: Madhya Pradesh ke Jhabua Jile ke vishesh sandarbh mein ek rajnaitik adhyayan.* Vikram, Dr. Om Prakash Gupta, Asstt. Prof., Govt. Science Department, 162, Patni Bazar, Ujjain.

Economics

1. Jain, Lata. *Madhya Pradesh mein rajgar pariyojnayon ka arthik adhyayan.* Devi Ahilya. Dr. S.S. Pawar, Prof. and Head, Department of Economics, Devi Ahilya Vishwavidyalaya, Indore.

2. Jain, Manorama. *Dakshin Pashchimi Madhya Pradesh ke arthik vikas mein Madhya Pradesh Rajya Sehkari Bank maryadit kar ka yogdan.* Devi Ahilya. Dr. S.S. Pawar, Prof. and Head, Department of Economics, School of Economics, Devi Ahilya Vishwavidyalaya, Indore.

3. Krishnakumar, P. *Quality of life at household level of low income group in Kerala.* Kerala. Dr. K. Ramachandran Nair, Department of Economics, University of Kerala, Kariavattom.

4. Kulkarni, Shashikala. *Madhya Pradesh ke Dakshin Pashchim ke adivasi kshetra mein paramparagat udyog evam hastakala ka arthik vishleshan: Ek adhyayan.* Devi Ahilya. Dr. (Smt.) Nirupama Nagar, Asstt. Prof., Department of Economics, P.M.B. Gujarati Arts and Law College, Indore.

5. Pandey, Jai Shankar. *Production and marketing of pulses in Varanasi District.* BHU. Prof. G.S. Kushawaha, Department of Economics, Banaras Hindu University, Varanasi.

Law

1. Asok Kumar, A. *Government regulations over private enterprises.* Kerala. Prof. M. Krishnan Nair, Centre for Advanced Legal Studies and Research, Trivandrum.

2. Lalitha, S. *A critical evaluation of the law, procedure and practice relating to motor accident compensation claims.* Kerala. Prof. M. Krishnan Nair, Centre for Advanced Legal Studies and Research, Trivandrum.

Education

1. Dhaneswar, Hari Chandan. *A study of contribution of Open University System to the development of higher education with special reference to Orissa.* Poona. Dr. P.R. Panchmukhi, Director, Indian Institute of Education, Pune.

Commerce

1. Shrivastava, Narendra Kumar. *Sagar Jile mein ekikrit grameen vikas karyakram ke antargat labhanvit hitgrahiyon ka arthik sarvekshan.* HS Gour. Prof. R.K. Bharati, Reader, Department of Commerce, Dr. Harisingh Gour Vishwavidyalava, Sagar.

2. Tulasyan, Girdhari Lal. *A critique of Income Tax Act, 1961 with special reference to tax avoidance in India.* BHU. Dr. S.P. Agrawal, Department of Commerce, Banaras Hindu University, Varanasi.

Management

1. Balaji Prasad, P. *Marketing of health services: A study of maternity care.* Venkateswara. Prof. M. Chandrasekhar, Dean, School of Business Management, Sri Venkateswara University, Tirupati.

2. Srinivasa Reddy, M. *Management control systems for corporate hospitals.* Venkateswara. Prof. M. Chandrasekhar, Dean, School of Business Management, Sri Venkateswara University, Tirupati.

HUMANITIES

Language & Literature

English

1. Anitha Dhamayanthy, P. *Man-woman relationship in the novels of D.H. Lawrance and Jayakanthan with special reference to three novels of each author.* Kerala. Shri S. Venkitachalam Iyer, Institute of English, University of Kerala, Trivandrum.

2. Ashok Kumar. *Image of woman from Nathaniel Hawthorne to Issac Bashevis Singer.* HP. Dr. Som P. Sharma, Department of English, Himachal Pradesh University, Shimla.

3. Shahi, Keshari Nandan Pratap. *Dramatic art of W.B.Yeats.* BHU. Dr. R.N. Rai, Department of English, Banaras Hindu University, Varanasi.

4. Sundary, V. *A contrastive phonology of English and Malayalam based on instrumental analysis.* Kerala. Dr. Elias Valantine, Centre for English Language Teaching, University of Kerala, Trivandrum.

5. Tripathi, Vinaysheel. *Nature of tragic conflict in the plays of John Marston.* BHU. Dr. R.K.Shukla, Department of English, Banaras Hindu-University, Varanasi.

Sanskrit

1. Radhakrishnan Nair, K.S. *Balahrdya of Rama Pisharoti: Edition and study.* Kerala. Mr. M.P. Unnikrishnan, Lecturer, Department of Sanskrit, N.S.S. College Pandalam.

2. Yagnik, Suman. *Naishdyanand natak ka natyashastriya adhyayan.* HS Gour. Dr. Kusum Bhuriya, Reader, Department of Sanskrit, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

Hindi

1. Ajayakumar, K.C. *Bharatiya swatantrata andolan par adharit Hindi upanyas: Visleshanatmak adhyayan.* Kerala. Dr. N. Parameswaran, Prof., Department of Hindi, University College, Trivandrum.

2. Gandhi, Kanta. *Virendra Kumar Jain ke upanyas strot samagri ke upyog ke vishesh sandarbh mein.* Vikram. Dr. Jai Kumar Jalaj, Principal, Govt. Arts and Science College, Ratlam.

3. Goyal, Shankarlal. *Rajendra Yadav ka krititva: Katha sahitya aur katha sameeksha ke vishesh sandarbh mein.* Vikram. Dr. Rammurti Tripathi, Bank Colony, Devas Road, Ujjain.

4. Jain, Madhu. *Shri Ramesh Muni ka Hindi sahitya mein yogdan: Ek anusheelan.* Vikram. Dr. Om Prakash Sinha, Prof. and Head, Department of Hindi, Govt. College, Mandsor.

5. Jain, Shakuntala. *Desh vibhajan ka asadarbh aur Hindi katha sahitya.* Vikram. Dr. Jai Kumar Jalaj, Principal, Govt. Arts and Science College, Ratlam.

6. Jain, Sunita. *Mannu Bhandari ka sahitya: Parivarik sambandhon ke vighatan kee sthitiyan.* Vikram. Dr. Jai Kumar Jalaj, Principal, Govt. Arts and Science College, Ratlam.

7. Joshi, Ramkumar. *Hindi ke chhayavadi kaviyon ka katha sahitya.* Vikram. Dr. Omprakash Aren, Prof., Department of Hindi, Govt. Arts and Science College, Ratlam.

8. Mishra, Om Shankar. *Ramcharit Manas ke [illegible] nari patron ka manovaigyanik adhyayan.* Vikram. Dr. J.P. Srivastava, Principal, Govt. Girls College, Khilchipur.

9. Pandeya, Anita. *Pandit Rameshwar Shukla Anchal ke kavya [illegible] aur shilpa.* Vikram. Dr. (Mrs.) Sakuntala Singh, Department of Hindi, Govt. Girls College, Ujjain.

10. Porwal, Jyoti. *Adhunik Hindi vyangya nibandh aur Sharad Joshi ka sahitya.* Vikram. Dr. Om Thakur, 196, UGC Quarters, Jhabua.

11. Renuka, J. *Science fiction in Hindi: An analytical study.* Kerala. Dr. K.S. Mony, Manimandiram, 3/1510, Kesavadasapuram, Trivandrum.

12. Saxena, Madhubala. *Rajgarh Jile ka sahityik vritt.* Vikram. Dr. Devi Singh, Department of Hindi, Govt. College, Khilchipur.

13. Solanki, Mahendra. *Nirala sahitya mein manav mulyon kee khoj.* Vikram. Dr. (Mrs.) Manorama Bhatnagar, Asstt. Prof., Department of Hindi, Alka Bhavan, Ujjain.

14. Solanki, Pratibha. *Bhishma Sahani ke sahitya mein pragatisheel chetna.* Vikram. Dr. Rajendra Mishra, Head, Department of Hindi, Govt. Girls College, Ratlam.

15. Solanki, Sunitaraj. *Shri Naresh Mehta ke katha sahitya ke patron ka manovaigyanik adhyayan.* Vikram. Dr. (Mrs.) Urmi Sharma, Asstt. Prof., B-2127, Jyoti Nagar, Ujjain.

16. Sushama, T.K. *Navya swachandatavadi Hindi kavya: Sivamangal Singh Suman ke visesh sandarbh mein.* Kerala. Dr. N.E.Viswanatha Iyer, 26/2035, Tutor's Lane, Trivandrum.

17. Tewari, Prayya. *Madhya yugeen kavya ka saundryabodh: Tulsi ke vishesh sandarbh mein.* Vikram. Dr. Pawan Kumar Mishra, Prof., Department of Hindi, Vikram University, Ujjain.

18. Tiwari, Sushma. *Pragatisheel alochana aur Ramvilas Sharma.* Vikram. Dr. Rajendra Mishra, Head, Department of Hindi, Govt. Girls College, Ratlam.

19. Tripathi, Dwarika Nath. *Tulsi Das kee nari chitran sambandhi antar drishti.* BHU. Dr. (Mrs.) Indumati Singh, Department of Hindi, Banaras Hindu University, Varanasi.

20. Verma, Nilima Kumari. *Swatantrata prapti ke anantra kee Hindi kahani mein nari charitra ke avadharna: Mahila evam purush kahanikaron ke sakshya per.* Vikram. Dr. Bhagirath Bhole, Vice-Principal, Department of Hindi, Vikram University, Ujjain.

Urdu

1. Sayeed Afsar Aara. *Azam Karevi: Shaksiyat aur fun.* Devi Ahilya. Prof. Aziz Indori, Prof. and Head, Department of Urdu, Islamia Karimia Degree College, Indore.

Tamil

1. Challiah Pillai, S. *A critical edition and study of Naran-akapparul and application of the Akam theory to Thiruppathykkoval.* Kerala. Dr. P. Padmanabhan Thampy, Lecturer, Oriental Research Institute and MSS Library, University of Kerala, Kariavattom.

2. Issac Arul, G. *Folklore of Pootti Veeta kkaippadalkal.* Kerala. Dr. P. Doctor Nazeemdeen, Department of Tamil, University of Kerala, Kariavattom.

Malayalam

1. Benroy, A.S. *Contribution of Muttathu Varkey to Malayalam fiction: A study.* Kerala. Dr. V.S. Sharma, Prof., Department of Malayalam, University of Kerala, Kariavattom.

2. George, Suja Susan. *Irony in Malayalam short stories with special reference to V.K.N., O.V.Vijayan and Zacharia.* Kerala. Dr. V.S. Ramakrishnan, Lecturer, Department of Malayalam, University of Kerala, Kariavattom.

3. Indira Bai, R. *Influence of Kalidasa on Kumaran Asan.* Kerala. Dr. V.S. Ramakrishnan, Lecturer, Department of Malayalam, University of Kerala, Kariavattom.

4. Lila, V. *The depiction of social evolutions in the novels of Thakazhy.* Kerala. Dr. P.K. Sumathy Kutty, Lecturer, Oriental Research Institute and MSS Library, University of Kerala, Kariavattom.

5. Prasad, C.R. *Kerala Panineeyam and Dr. Caldwell's comparative grammar: A comparative [illegible].* Kerala. Dr. N.R. Gopinathan

Pillai, Reader, Department of Malayalam, University of Kerala, Kariavattom.

6. Radhakrishnan, V. *Modernist trends in Malayalam novels with special reference to D.V. Vijayan and Anand*. Kerala. Dr. Gopalakrishnan Nair, Prof., University College, Trivandrum.

7. Sathidevi, A.R. *Vision and structure: A study based on the selected novels of Thakazhy*. Kerala. Dr. N.K. George Onakkoor, Director, State Institute of Children's Literature, Trivandrum.

8. Sebastian, Joseph. *Elements of modernity: A study based on Sachidanandan's poetry*. Kerala. Dr. V.S. Ramakrishnan, Lecturer, Department of Malayalam, University of Kerala, Kariavattom.

9. Visvanathan Nair, K.N. *Treatment of Mahabharata themes in Attakkatha: A study*. Kerala. Dr. V.S. Ramakrishnan, Lecturer, Department of Malayalam, University of Kerala, Kariavattom.

Geography

1. Gupta, Om Prakash. *Geomorphology of Usri Basin*. Ranchi Dr. S.N.P. Gupta, Reader, Giridih College, Giridih.

2. Md. Moifuddin. *Impact of hydrological resources on the economic development of Chotanagpur Region*. Ranchi. Dr. D.P. Satpathy, Head, Department of Geography, Ranchi University, Ranchi.

3. Singh, Kamal Kumar. *Land utilization in the Sanjai Basin*. Ranchi. Dr. D.P. Satpathy, Head, Department of Geography. Ranchi University, Ranchi.

4. Tiwari, Ram Kumar. *Population and settlement in Lohardaga district*. Ranchi. Dr. D.P. Satpathy, Head, Department of Geography, Ranchi University, Ranchi.

History

1. George, M.N. *History of the Marthoma Church from 1836-1947*. Kerala. Dr. M.O. Koshy, Prof. and Head, Department of History, Christian College, Chengannur.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities.

SOCIAL SCIENCES

Library & Information Science

1. Murthy, S.S. *Design of an online bibliographic information network for a multi unit R and D organisation*. Gulbarga. Dr. S.R. Gunjal, Prof. and Chairman, Department of Library and Information Science, Gulbarga University, Gulbarga.

2. Rajagopal, T. *A critical study of information seeking behaviour of medical specialists in Madras City, India*. Venkateswara. Prof. G.V.S.L.N. Raju, Department of Library and Information Science, Andhra University, Visakhapatnam.

Psychology

1. Amruthraj, Brunda. *Behavioural management of tension headache*. Bangalore. Dr. H. Mishra, Additional Prof., Department of Clinical Psychology, National Institute of Mental Health and Neuro-Sciences, Bangalore.

2. Ghai, Anita. *Prediction of the work performance of the mentally handicapped in a sheltered workshop setting: A follow up study*. Delhi.

Sociology

1. Balakrishnan, Rajiv. *Marriage migration in rural India, 1971: A district level analysis*. JNU. Prof. M.K. Premi, Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi.

2. Leena, M.L. *Medical care and womens: A study of hospital services*. Kerala. Dr. G. Narayana Pillay, Prof., Department of Sociology, University of Kerala, Kariavattom.

3. Monirul Hussain. *The Assam movement: A sociological study*. JNU. Prof. K.L. Sharma, Centre for the Study of Social Systems, Jawaharlal Nehru University, New Delhi.

Political Science

1. Abdul Javeed, S. *Mangalore City Corporation: A case study*. Mangalore. Prof. K. Raghavendra Rao, Prof. (Emeritus), Mangalore University, Mangalagangotri.

2. Ambedkar, Nagendra. *Political elite: A study of legislators in Andhra Pradesh*. Osmania.

3. Bankoti, G.S. *The non-aligned movement and disarmament*. Kumaun. Dr. D.S. Karki.

4. Khare, Ram Kumar. *1967 se 1980 ke beech Madhya Pradesh Vidhan Sabha dwara mantri parishad per niyantran: Sidhant evam vyavhar*. HS Gour. Dr. R.C. Dube, Head, Department of Political Science and Public Administration, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

5. Mishra, Ramji. *Swami Karpatrijee aur unka rajnaitik darshan*. Kumaun. Dr. M.P. Dubey.

6. Mohanty, Bikram Keshari. *Protest and dissent movement in Orissa: A case study of Nilgiri uprisings*. Sambalpur. Dr. L.N. Mishra, Reader, Post Graduate Department of Political Science, Sambalpur University, Burla.

7. Roy Choudhury, Kunal. *Between tradition and modernity: A study of Gandhian perspective*. Rabindra Bharati.

Economics

1. Adwant, Vijay Kumar. *Trends in demand pattern of India's importables, 1950-1982: A case study of major importable products*. Osmania.

2. Aher, B.M. *Economics of grape cultivation in Niphad Taluka*. Shivaji. Dr. V.B. Ghuge, Prof. and Head, Department of Economics, Shivaji University, Kolhapur.

3. Ananda Rao, Bommireddipalli. *Direct taxation of agriculture in India: A study in development finance*. Andhra.

4. Brahman, U. *Agricultural growth and development in Andhra Pradesh*. Venkateswara. Prof. L. Kannaiah Naidu, Department of Econometrics, Sri Venkateswara University College, Tirupati.

5. Chandrasekhara Raju, A.B. *Growth and pattern of public expenditure in Andhra Pradesh*. Krishnadevaraya. Prof. M.L. Kantha Rao, Department of Economics, Sri Krishnadevaraya University College, Anantapur.

6. Deshmukh, Sharad Anantrao. *Growth and development of agricultural marketing with special reference to Cotton marketing in Akola and Yeotmal districts*. Nagpur. Shri P.K. Fadnavis, Department of Economics, Nagpur University, Nagpur.

7. Lakshminarayana Reddy, K. *Supply and distribution of drinking water as a public enterprise in Anantapur District*. Krishnadevaraya, Prof. S. Subbaramaiah, Institute of Management, Sri Krishnadevaraya University College, Anantapur.

8. Madhu Bala. *District rural development agency in Haryana: Performance, problems and prospects*. Kurukshetra.

9. Mani, Keshav Kumar. *The Gandhian concept of trusteeship and its relevance in Indian economic system.* Bihar. Dr. R.P. Verma, Prof., Department of Economics, Bihar University, Muzaffarpur.

10. Mogal, Sahebrao Wamanrao. *Price structure of onion in Maharashtra.* Marathwada Agrl. Dr. B.W. Ashturkar, Prof., Department of Agricultural Economics, Marathwada Agricultural University, Parbhani.

11. Om Parkash. *Urban housing in Punjab: A case study of Patiala.* Punjabi. Dr. Baldev Singh, Department of Economics, Punjabi University, Patiala and Dr. Vishwamittar, Department of Economics, Punjabi University, Patiala.

12. Padheria, Madarsang Mulubhai. *Scientific productivity of academic staff from Marathwada Agricultural University, Parbhani: A system analysis.* Marathwada Agrl. Dr. R.R. Kulkarni, Asstt. Prof., Department of Agricultural Extension, Marathwada Agricultural University, Parbhani.

13. Ramaiah, Dasaratha. *Finances of gram panchayats: A study in Anantapur District of Andhra Pradesh.* Krishnadevaraya. Prof. N. Narayana, Prof., Department of Economics, Sri Krishnadevaraya University College, Anantapur.

14. Sharma, Anil Kumar. *Demand for fertilizer and its optimum allocation in Himachal Pradesh.* HP Krishi. Dr. Prakash Mehta, Deputy Director (P), Himachal Pradesh Krishi Vishwavidyalaya, Palampur.

15. Sridhar, G. *Dairying in rural development: A case study of dairy cooperatives in Andhra Pradesh.* Krishnadevaraya. Prof. K. Venkata Reddy, Prof., Department of Rural Development, Sri Krishnadevaraya University College, Anantapur.

16. Thakur, Kiran. *Mandla Jile ke pramukh van upjon ka arthik adhyayan.* HS Gour. Dr. S.K. Pandey, Department of Economics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

17. Vekaria, Ravjibhai Savjibhai. *Study of socio-economic status level of the farmers and their input use behaviour under command area, Maharashtra.* Marathwada Agrl. Dr. B.S. Mahajan, Prof., Department of Agricultural Extension, Marathwada Agricultural University, Parbhani.

Public Administration

1. Sachdeva, Pardeep. *Municipal Government and politics in Punjab: A case study of one Municipal Committee and one Municipal Corporation in Punjab.* Punjabi. Dr. K.K. Puri, Department of Public Administration, Punjabi University, Patiala and Dr. S.L. Kaushik, Department of Public Administration, Punjab University, Chandigarh.

2. Tiwana, Sukhjinder Singh. *Federalising process in India: A case study of Punjab.* Punjabi. Dr. Harbans Pathak, Reader, Department of Public Administration, Punjabi University, Patiala and Dr. Dalip Singh, Head, Department of Political Science, Punjabi University, Patiala.

Military Studies

1. Datta, Rakesh Kumar. *The China factor in India's security.* Punjabi. Dr. R.N. Mishra, Department of Defence Studies, Punjabi University, Patiala.

Education

1. Bhinder, Palvinder Singh. Achievement motivation, emotional and social adjustment of foot-ball players playing at different levels. Punjabi. Dr. Ved Parkash Gupta, Govt. College of Education, Patiala.

2. Deota, Nilamber Prabhakar. *A study of the characteristics of effective leadership behaviour of secondary school principals.* Baroda.

3. Hardev Singh. *The implementation of national educational policies in India:* Punjabi. Dr. M.R. Kansal, Reader, Department of Education, Punjabi University, Patiala.

4. Jayammal, A.S. *Contribution of the Church to Indian education: A historical and sociological analysis.* Osmania.

5. Manral, Bheena. *The impact of emotional maturity and prolonged deprivation on indisciplined behaviour among university students in relation to their academic achievement.* Kumaun. Dr. P.D. Juyal.

6. Mehta, Asha. *Shikshkon ke darshnik abhimukhi karan evam shaikshik nirgat se sambandhit samajik manovaigyanik karkon ka adhyayan.* Kumaun. Dr. P.D. Juyal.

7. Parmar, Ganeshbhai S. *Educational thinking of Kishorlal mashruwala.* Patel. Dr. D.S. Surve, Reader, M.B. Patel College of Education, Sardar Patel University, Vallabh Vidyanagar.

8. Punia, Bhupinder Singh. *Evaluation of general physical fitness of the youth of Punjab.* Punjabi. Dr. H.S. Sodhi, National Institute of Sports, Old Moti Bagh, Patiala.

9. Sudharma, A. *A study of the efficacy of certain measures adopted for preventing wastage and stagnation in the schools of Kerala.* Kerala. Dr. (Mrs.) Mercy Abraham, Prof., Department of Education, University of Kerala, Trivandrum.

Commerce

1. Babu, Edigi Shobhan. *Collective bargaining in Indian Railways: A study with special reference to South Central Railway.* Krishnadevaraya. Prof. P. Subba Rao, Sri Krishnadevaraya Institute of Management, Anantapur.

2. Bhaskar Naidu, R. Vijaya. *Working of industrial estates in Rayalseema region: A case study.* Bangalore. Dr. K. Hanumanthappa, Vice-Chancellor, Bangalore University, Bangalore.

3. Gautam, Purushottam. *Madhya Pradesh Rajya Sadak Parivahan Nigam mein bhandar samgri prabandh.* HS Gour. Dr. A.K. Gangele, Department of Commerce, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

4. Gupta, Satya Prakash. *Bharatiya paridhanon ka vishwa vyapar: Ek vishleshnatmak adhyayan.* Durgawati. Dr. N.K. Pandey, G.S. College of Commerce and Economics, Jabalpur.

5. Noolvi, I. Gurusiddappa. *A study of sickness in small scale industrial units in Hubli-Dharwad Municipal Corporation Area.* Karnatak. Dr. B.M. Wali, Reader, Department of Commerce, Karnatak University, Dharwad.

6. Patel, Anupam Chimanbhai. *Bhandara Jile kee van arthvyavastha: Ek adhyayan.* Nagpur. Dr. R. Paliwal, S.N. Mor College, Tumsar.

7. Pujar, Basayva Channabasayya. *A study of banking habits and savings pattern of farmers in Malaprabha River irrigation areas: A case study of Navalgund and Nargund talukas of Dharwad District of Karnatak State.* Karnatak. Dr. B.M. Wali, Reader, Department of Commerce, Karnatak University, Dharwad.

8. Sulochana, M. *University finances with special reference to Osmania University.* Osmania.

9. Vijay Prakash. *Working capital management under inflation.* Kumaun. Dr. T.D. Joshi.

Management

1. Bawa, Daljit Singh. *A study of personality traits, needs and achievement motivation of entrepreneurs of Punjab.* Punjabi. Dr. B.S. Bhatia, Prof., Department of Business Management, Punjabi University, Patiala and Dr. T.S. Sodhi, Department of Education, Punjabi University, Patiala.

2. Dwivedi, Rama Kant. *A study of some behavioural determinants organizational performance in selected industrial undertaking in India.* Kurukshetra

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1. AT THE VECTOR CONTROL RESEARCH CENTRE, PONDICHERRY — (One Post)

This Centre is engaged in carrying out research studies on vector biology and control, parasite epidemiology of Bancroftian filarasis, Brugean filariasis control with community participation at Shertallai, and control of tribal malaria at Koraput etc. The Centre also runs an international training course leading to the degree of M.Sc. (Medical Entomology), and has a regular Ph.D. programme.

Qualifications & Experience: Essential: M.D. (Microbiology/Pathology/Social and Preventive Medicine) or Ph.D./D.Sc. in Zoology/Entomology with 15 years research/teaching experience in biology and control of arthropod vectors of human/animal diseases and ample evidence of experience and ability to work in the field. Original work as evidenced by publications.

Desirable: Administrative experience at appropriate positions.

Job Requirements: It is a top research management post. The Director will have the overall responsibility of the Centre and for creating an atmosphere conducive to creative work, to promote bio-medical research in the field of biology and control of arthropod vectors of human/animal diseases and when necessary organise and demonstrate control measures on a pilot scale, to train technical manpower and to interact with local health authorities to help in the solution of their health problems in the region.

2. AT THE REGIONAL MEDICAL RESEARCH CENTRE, PORT BLAIR — (One Post)

This Centre is engaged in scientific research in different aspects of diseases such as malaria, diarrhoeal diseases, nutritional aspects, Sero-epidemiology etc., with a multisectoral approach to study the health problems in general and of the tribals of this territory in particular. The Centre has well-equipped laboratories and other infrastructural facilities for conducting clinical and laboratory studies.

Qualifications & Experience: Essential: M.D. (Pathology/Microbiology/Social and Preventive Medicine/General Medicine) or allied discipline with research experience of 15 years with original work as evidenced by publications.

Desirable: Administrative experience in responsible positions.

Job Requirements: The Director is expected to provide high level leadership in the identification, formulation and implementation of R&D Programmes and projects of national importance in the above areas. He will establish rapport with academic and professional institutions and Govt. and international agencies dealing with the various related Research and Development aspects for ensuring multi-agency co-operation whenever necessary for fulfilment of the objectives of the Centre. He will interact with local and national health authorities in the formulation, implementation and assessment of the health problems in the Territory. He will have the overall responsibility for the working of the Centre within the framework of the ICMR system and for ensuring an atmosphere conducive to the creative work.

3. AT THE ENTEROVIRUS RESEARCH CENTRE, BOMBAY — (One Post)

This Centre is engaged in Scientific Research in different aspects of problems in poliomyelitis and polio viruses. The Centre has well equipped laboratories and other infrastructural facilities for conducting research studies in poliomyelitis.

Qualifications & Experience: Essential: M.D./Ph.D./D.Sc. or equivalent postgraduate qualification in Virology/Microbiology or related discipline with research/teaching experience of 15 years in the field of Virology with original work to the credit of the candidate and experience in disciplines related to Enteroviruses. Original work as evidenced by publications.

Desirable: Administrative experience in responsible positions.

Job Requirements: It is a top research management post in the field of virology. The Director is required to provide high level leadership in the formulation of research programmes and projects and in organising/co-ordinating team work. He will have the overall responsibility for the working of the Centre within the framework of the Council.

SALARY/CONDITIONS OF SERVICE: The scale of pay attached to the post is Rs. 5900-200-6700 plus allowances as per Central Govt. Rules and NPA of Rs. 950/- p.m. for medical graduates only. Higher initial pay can also be considered. Free medical aid and leave travel concession are also permissible for the employee and his family as per Govt. rules.

FOR PORT BLAIR: ICMR staff stationed at Port Blair will be entitled to rent free accommodation. They will also entitled for special compensatory allowance and any other benefits as admissible under the rules.

AGE: Below 50 years. SC/ST candidates allowed relaxation in accordance with Govt. of India Rules.

Educational qualifications relaxable in the case of candidates otherwise well qualified. Benefits of pension admissible. Private practice is not allowed. However, nonpractising allowance is admissible to medical graduates only as per rules of the Council. Application forms can be obtained from the office of the Director General, **Indian Council of Medical Research, Ansari Nagar, Post Box**

No. 4508, New Delhi-110 029 to whom the complete application form should be sent accompanied with crossed postal order for Rs. 8/- (No fee for SC/ST candidates) made out in the name of the Director General, ICMR, New Delhi. Applications without postal order will not be entertained.

Candidates called for interview will be paid 1st class rail fare by the shortest route. No TA/DA is admissible for joining the post or on termination of appointment. Application from the employees working under the Central/State Govt./Semi Govt. and Govt. controlled undertakings should be sent through the employers and be received before the closing date alongwith the certificate that the applicant will be relieved within three months of receipt of appointment orders. Advance copies will be considered subject to the proviso that the certificate will be produced at the time of personal discussion. Applications received after the closing date will not be considered. At the time of interview they should produce "No Objection Certificate" from their employer.

The name of the post and of the Institute/Centre must be indicated in the application. Incomplete application will not be entertained. Separate application should be submitted for each post.

REGIONAL ENGINEERING COLLEGE

G.T. ROAD BYE PASS, JALANDHAR.

ADVERTISEMENT NO. 5/90

Applications are invited for the post of Principal, in the grade of Rs. 2250-125/2-2500-EB-125/2-2750 (being revised shortly) alongwith a postal order for Rs. 15/- drawn in favour of the Principal, Regional Engineering College, Jalandhar. The candidates must fulfil the following qualifications:

1. Ph.D with Ist class at Bachelor's or Master's level in Engg./Technology OR Ph.D. degree with Ist class M.Sc. in appropriate branch in Humanities/Sciences.
2. 10 years experience in teaching/industry/research out of which 5 years must be at the level of Asstt. Professor or equivalent.

Note: Candidates from Industry/Profession with recognised professional work of high standard recognised at National/International level equivalent to Doctorate would also be eligible.

DESIRABLE: Administrative Experience in a responsible position.

The appointment shall be made on a contract basis for an initial term of three years with the possibility of renewal depending upon the merits of each case.

The post carries D.A. and other allowances as admissible under the rules of the college. Candidates called for interview from the outside will be paid single Ist class railway/Air-Conditioned Bus fare by shortest route for their journey to and fro. Provision for higher start exists for exceptionally qualified and deserving candidates. Persons in service should submit their applications through their employers. Applications typed on plain paper giving the following particulars complete in all respects should be sent by registered post to the Registrar, Regional Engineering College. Jalandhar. so as to reach him by **10.07.1990**:

1. Name in full (in Block letters) :
2. Father's Name :
3. Present Postal address (Block letters) :
4. Nationality :
5. Date of Birth :
6. Educational qualifications (from Matriculation onwards with percentage of marks & the Board/University from where passed in tabular form alongwith attested copies of the testimonials. :
7. Field of Specialization :
8. List of all previous employment in order (Most recent first together with details of duties, salary drawn. :
9. Details of Publications (Attach Prints) :
10. Name and Address of two references :
11. Any other relevant information :

REGISTRAR

Insp [illegible]

THE KASTURBA MEDICAL COLLEGE

MANIPAL, D.K.

NOTIFICATION

Admission to

"POST-GRADUATE DIPLOMA COURSE IN YOGA THERAPY" AFFILIATED TO MANGALORE UNIVERSITY

Applications are invited from eligible candidates for admission to the "Post-graduate Diploma Course in Yoga Therapy", affiliated to Mangalore University at the Kasturba Medical College, Manipal. This is a unique course in India. The duration of the course is one year. Candidates seeking admission to the course must be a graduate. The prescribed application form can be had from the Medical Director, Kasturba Medical College, Manipal-576 119, by sending a crossed postal order of Rs.10/- drawn in favour of "Dr. T.M.A. Pai Foundation, Manipal", along with a self-addressed Rs. 1.40 stamped envelope of 9" × 4" size. The last date for receipt of the filled up application form is **14th July, 1990.**

PRINCIPAL

UNIVERSITY OF CALICUT

ACADEMIC STAFF COLLEGE

SCHEDULE OF REFRESHER COURSE 1990–91

Course No.	Period	Thrust area
LIFE SCIENCE (for southern and eastern regions)		
ASRLO1	Aug. 06-31,90	Recent Developments in Life Sciences
ASRLO2	Oct. 1990	– do –
ASRLO3	December 1990	Advances in Zoology
ASRLO4	Feb. 1991	Advance in Botany
PSYCHOLOGY (for southern region)		
ASRPO5	July 09-Aug. 03, 1990	Emerging trends in Psychology
ASRPO6	Nov. 1990	Personality Research
ASRPO7	Jan. 1991	Advances in Social Psychology
ASRPO8	Feb. 1991	Basic Processes
ASRPO9	Mar-April 1991	Recent Advances in Psychology

Teachers with not less than 5 years of regular teaching experience in University Departments/affiliated colleges coming under Section 12(b)/2(f) of UGC Act are eligible to participate. For ASRLO1 & ASRLO2, teachers from the Departments of Botany, Zoology, Life Sciences and Microbiology may apply.

Applications in prescribed form should reach the Director, ASC, Calicut University 673635 Kerala at least 35 days before the commencement of each course.

11.06.90 **DIRECTOR**

A.I.U. PUBLICATIONS

No.	Title		Rs.
1.	Universities Handbook — 1989		600.00
2.	Equivalence of Foreign Degrees		180.00
3.	Handbook of Engineering Education — 1988		50.00
4.	Handbook of Medical Education — 1990		50.00
5.	Handbook of Management Education		30.00
6.	Handbook of Agricultural Education — 1986		40.00
7.	Handbook of Distance Education		In Press
8.	Association of Indian Universities — 1925-75		50.00
9.	Association of Indian Universities — 1925-85		100.00
10.	New Technologies in Higher Education	(HB)	120.00
		(PB)	80.00
11.	Studies in Distance Education	(HB)	60.00
		(PB)	20.00
12.	Universities and Research		45.00
13.	University Finance — A Statistical Profile II		75.00
14.	State Funding of Universities		50.00
15.	Elite in the Making		40.00
16.	Economics of College Education — A Study of Hindu College, Delhi		30.00
17.	Educational Statistics at a Glance		75.00
18.	Education and Economic Development		25.00
19.	Report of the Task Force on Autonomous Colleges and Departments		60.00

BIBLIOGRAPHY OF DOCTORAL DISSERTATIONS

No.	Title	Rs.
20.	Social Sciences	50.00
21.	Humanities	100.00
22.	Physical Sciences 1857-1970	125.00
23.	Biological Sciences	100.00
24.	Social Sciences & Humanities — 1970-75	150.00
25.	Physical Sciences — 1970-75	120.00
26.	Biological Sciences — 1970-75	120.00
27.	Social Sciences & Humanities — 1975-76	50.00
28.	Natural & Applied Sciences — 1975-76	90.00
29.	Social Sciences & Humanities — 1976-77	70.00
30.	Natural & Applied Sciences — 1976-77	120.00
31.	Social Sciences & Humanities — 1977-78	90.00
32.	Natural & Applied Sciences — 1977-78	100.00
33.	Social Sciences & Humanities — 1978-79	90.00
34.	Natural & Applied Sciences — 1978-79	125.00
35.	Social Sciences & Humanities — 1979-80	90.00
36.	Natural & Applied Sciences — 1979-80	130.00
37.	Social Sciences & Humanities — 1980-81	120.00
38.	Natural & Applied Sciences — 1980-81	180.00
39.	Social Sciences & Humanities — 1981-82	150.00
40.	Natural & Applied Sciences — 1981-82	225.00
41.	Social Sciences & Humanities — 1982-83	160.00
42.	Natural & Applied Sciences — 1982-83	250.00
43.	Social Sciences & Humanities — 1983-84	180.00
44.	Natural & Applied Sciences — 1983-84	320.00
45.	Social Sciences & Humanities — 1984-85	200.00
46.	Natural & Applied Sciences — 1984-85	320.00
47.	Social Sciences & Humanities — 1985-86	200.00
48.	Natural & Applied Sciences — 1985-86	320.00

ON EXAMINATIONS

No.	Title		Rs.
49.	Unfair Means in University Examinations — A Study		50.00
50.	Computer in Examinations (Why & How)		65.00
51.	Scaling Techniques: What, Why & How		75.00
52.	Conduct of Examinations		35.00
53.	Towards Better Questions		7.00
54.	Monograph on Grading		5.00
55.	Monograph on Question Banking		7.00
56.	Monograph on Internal Assessment		10.00
57.	Monograph on Test & Item Analysis		17.00
58.	Monograph on Question Banking in English Language & Literature		10.00
59.	Monograph on Practical Examinations		9.00
60.	Monograph on Semester System		20.00
61.	Research Abstracts — Part I, II, & III	Each	6.00
62.	Research Abstracts — Part IV		14.00
63.	Monograph on Sample Free Item Analysis		50.00
64.	Monograph on Moderation of Examination Results		8.00
65.	Monograph on Syllabus Analysis and Restructuring		10.00
66.	Monograph on Revaluation of Answer Scripts		12.00
67.	Assessing Non Scholastic Aspects of Learners Behaviour		14.00

STATUS REPORTS ON

No.	Title	Rs.
68.	Grading in Universities	35.00
69.	Question Banking in Universities	25.00
70.	Internal Assessment in Universities	30.00
71.	Internal Management in Universities	30.00
72.	Preparations made by Universities to Receive 10 + 2 Input	30.00

QUESTION BANK BOOK SERIES

Undergraduate level *(English Script)*

No.	Title	Rs.
73.	Mathematics	120.0
74.	Physics	70.00
75.	Chemistry	75.00
76.	Zoology	50.00
77.	Botany	75.00
78.	History	45.00
79.	Geography	35.00
80.	Psychology	55.00
81.	Economics	75.00
82.	Commerce	45.00
83.	Political Science	35.00
84.	Foods & Nutrition	25.00
85.	Sociology	45.00
86.	English Language & Literature	30.00
87.	Physiology	45.00
88.	Pharmacology	35.00
89.	Automobile Engineering	35.00
90.	Law of Contracts	45.00
91.	Anatomy	60.00
92.	Constitutional Law	35.00
93.	Electrical Power System	75.00
94.	Zoology *(Hindi Script)*	100.00
95.	Chemistry *(Hindi Script)*	160.00

Postgraduate level

No.	Title	Rs.
96.	Mathematics	65.00

SPORTS & PHYSICAL EDUCATION

No.	Title		Rs.
97.	Physical Fitness & Sports Standards in Universities		50.00
98.	Handbook of Rules & Regulations for Inter-University Tournaments		20.00
99.	Gymnastic Exercises for Men & Women	Each	5.00

BOOKS ALSO AVAILABLE WITH LEADING BOOKSELLERS IN THE COUNTRY

Address Enquiries to: **Under Secretary *(Publications)***

Association of Indian Universities

AIU House, 16 Kotla Marg, New Delhi-110 002

Telephone: 3310059, 3312305, 3312429, 3313390

Telex: 31-66180 AIU IN GRAM: ASINDU

CLASSIFIED ADVERTISEMENTS

PANJAB UNIVERSITY (CHANDIGARH)

ADVERTISEMENT NO. 7/90

Applications are invited for the following posts, so as to reach the Registrar, Panjab University, Chandigarh by **July 10, 1990.** The total emoluments (including CCA/HRA) admissible at present with the minimum/maximum of the scale of pay are shown in the brackets:—

1.	Finance & Development Officer-1 **(Permanent)** Existing scale: Rs. 1400-2000+Spl. pay Rs. 150/- p.m. (Minimum Rs. 4472.00) (Maximum Rs. 5523.40)	**Likely to be revised with approval of the Senate.** Rs. 4125-125-5000-150-5600+ Spl. pay Rs. 300/- p.m. (Minimum Rs. 6,655/-) (Maximum Rs. 8,568/-)
2.	Deputy Registrars-3 (Permanent-2, Temporary-1) Existing Scale Rs. 1400-2000+ Spl. pay Rs. 100/- p.m. (Minimum Rs. 4422.00) (Maximum Rs. 5473.40)	Rs. 3700-100-4000-125-5000+ Spl. pay Rs. 200/- p.m. (Minimum Rs. 6,030/-) (Maximum Rs. 7,700/-)
3.	Assistant Registrars-2 (Permanent) Existing Scale Rs. 940-1850+ Spl. pay Rs. 100/- p.m. (Minimum Rs. 3099.10) (Maximum Rs. 5137.00)	Rs. 2200-50-2400-60-2700-75-3000-100-4000+Spl. pay Rs. 200/- p.m. (Minimum Rs. 3,736/-) (Maximum Rs. 6,430/-)

QUALIFICATIONS AND EXPERIENCE:—

For post at Sr. No. 1:

(i) M.A. or LL.B. from a recognised Indian University or an equivalent qualification with experience of dealing with Finance, Establishment and Planning/Development in the University or an Educational Institution of standing.

(ii) Five years Administrative experience in a University or a reputed centre of higher education.

NOTE:

Officers of higher ranks from the offices of the Accountant Generals, who possess the prescribed qualifications and experience could also be considered for appointment to the post of Finance & Development Officer for deputation on standard terms.

For post at Sr. No. 2:

Essential:

(i) Master's or LL.B. Degree of recognised University or its equivalent qualification.

OR

(ii) A University employee with not less than 25 years of service in the University and who has worked as Assistant Registrar for a period of not less than four years shall be eligible to apply for the post of Deputy Registrar irrespective of the qualifications prescribed.

Desirable:

At least 5 years' administrative experience at the level of Superintendent/P.A. or above in a University or an educational institution.

OR

10 years' teaching experience in a College or a University (5 years' in the case of a teacher with Ph.D. Degree), preferably with experience of administration at College/University, such as head of the Department, Bursar, Registrar (Exams.), Officer-Incharge N.C.C., etc.

OR

Comparable qualifications in Research Establishment and other institutions of higher education.

For post at Sr. No. 3:

Essential:

Master's or LL.B. Degree of a recognised University or its equivalent qualification.

Superintendents/P.A.s. or persons holding equivalent posts in the administrative (ministerial) staff of the Panjab University with the following qualifications/experience:—

(i) 10 years' service in the existing post (irrespective of the qualifications prescribed).

OR

(ii) 3 years' service in the existing post with B.A., being the minimum qualifications, provided the total service as Assistant/Stenographer or equivalent or higher posts is not less than 15 years.

OR

(iii) 5 years' service in the existing post in the case of matriculates provided the total service as Assistant/Stenographer or equivalent and higher post is not less than 17 years.

Desirable:

At least 2 years' experience of educational administration and sufficient knowledge of organisation and working of a University/affiliated colleges.

Persons already in service should route their applications through proper channel. Incomplete forms and those received after the due date are liable to be rejected unless the Vice-Chancellor condones the delay or discrepancy by a special order. Attested copies of certificates in support of the qualifications and experience be attached with the applications. Serving employees may, however, send their applications on the prescribed proforma direct to the University. They may route another copy through their department. They will be allowed to present themselves for interview only on the production of 'No Objection Certificate' from their employers. Convassing in any form will disqualify the candidate. Higher start to deserving candidates is admissible.

The Vice-Chancellor could place before the Selection Committee the name(s) of suitable person(s) for its consideration alongwith the applications received in response to the advertisement. It is not obligatory on the part of the University to call for interview every candidate who possess the essential qualifications.

The number of vacancies may change. The University may also prepare panel of suitable candidates for appointment against vacancies occurring within a specified period.

Applications forms can be obtained from the Cashier, Panjab University, personally. The cost of application form (inclusive of the application fee) is Rs. 15/- for the posts. The priced forms may also be had by making a written request to the Deputy Registrar (Estt.), Panjab University, Chandigarh accompanied by a self-addressed stamped (worth Rs. 5.40) envelope of 23x10 cms and a postal order of Rs. 15/- may be drawn in favour of the Registrar, Panjab University, Chandigarh.

PUNJABI UNIVERSITY
PATIALA

Advt. No. 24/PRO/Rect. June, 1990

Applications on the prescribed forms are invited for the following posts in AUDIO-VISUAL RESEARCH CENTRE (A UGC Educational TV Project), so as to reach the Deputy Registrar (Establishment) by July 11, 1990:

1. **RESEARCH SCIENTIST:** One (Rs. 2200-4000)

   Master's degree in Anthropology (Social), Economics, Education, Development Communication, Psychology, Social Work, or Sociology with at least 55 per cent marks or its equivalent grade and second class (50%) in the Bachelor's degree.

   Candidates must have good background in Statistics. Candidates possessing M.Phil. or Ph.D. degree will be given one and three advance increments respectively in the pay scale. Work experience in viewer/audience survey and research would be an additional qualification and given preference.

2. **ASSISTANT ENGINEER:** One (Rs. 2200-4000)

   B.E./B.Tech. (Electronics) or M.Sc. (Physics) with Electronics as special subject from a recognized University/Institute or equivalent with 2 years experience in the field of TV/Broadcasting.

3. **PRODUCER:** One (Rs. 2000-4000)

   Degree or Diploma of a recognized Institute in Cinema (Direction) or in Development Communication or Degree in any discipline with at least second class of a recognized University or equivalent qualifications and 3 years experience of direction in Television/Film Production. Work experience in educational media production would be an additional qualification.

4. **CAMERAMAN (GRADE-I):** One (Rs. 2000-3500)

   Diploma/degree in Cinematography or equivalent qualifications from a recognized Institute with 3 years relevant experience OR Intermediate examination or equivalent qualifications and at least 6 years experience of Camera work in TV/Films.

5. **CAMERAMAN (GRADE-II):** One (Rs. 1640-2900)

   Diploma/degree in Cinematography or equivalent qualifications from a recognized Institute. OR Intermediate examination or equivalent qualifications and at least 3 years experience of Camera work in TV/Films.

6. **PRODUCTION ASSISTANT:** One (Rs. 1640-2900)

   Degree in Dramatics or Diploma of National School of Drama or equivalent Degree or Diploma of a recognized University/Institute OR degree in any discipline with at least second class of a recognized University or equivalent qualifications and at least 2 years experience of Programme Production Assistant in Films/TV/Theatre/Radio or educational research evaluation/production of Audio-visual media.

7. **TECHNICAL ASSISTANT:** One (Rs. 1640-2900)

   Diploma/Degree in Sound Recording or Video Editing of a recognized Institute with at leat 2 years of relevant experience.

8. **TECHNICIANS:** Two (Rs. 1200-2040) One post reserved for SC/ST.

   Diploma/Certificate in Electronics or Electrical or Mechanical Engineering from a recognized Institute/University with 3 years experience in the related field OR S.S.C. (old) with 10 years experience in the related field. Work experience in TV production will be considered an additional qualification.

NOTE:

(1) All these posts are temporary but likely to continue.
(2) Working knowledge of Punjabi desirable.
(3) Incomplete applications will not be entertained.
(4) It is not obligatory to call for interview every candidate who possesses the essential qualifications.

APPLICATION FORMS can be obtained from the Head, Publication Bureau, Punjabi University, Patiala-147 002 on payment of Rs.15/- at the counter OR by sending IPO for Rs.15/- in favour of the Registrar alongwith a self-addressed envelope (25 × 10 cms.) affixed with postage stamps worth Rs.7/- and indicating on it the name of the post applied for.

REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY,
BOMBAY

ADVT. NO. E-19/90-91

Invites applications from exceptionally qualified candidates for FACULTY POSITIONS at the PROFESSOR and ASSOCIATE PROFESSOR levels for its various ACADEMIC DEPARTMENTS AND INTERDISCIPLINARY PROGRAMMES.

Candidates should have a distinguished academic record, excellent communication skills, a commitment of high quality undergraduate and postgraduate education and teaching, exceptional potential for creative research and the talents and motivation to develop a research programme of national recognition. The Institute encourages interaction of the faculty with the industry, other research and professional Institutions. Joint appointments may be made between the departments, interdisciplinary programmes, and the Centres (Advanced Centre for Research in Electronics, Computer Aided Design Centre, Centre of Studies in Resources Engineering. Centre for Technology/Alternatives for Rural Areas, Regional Sophisticated Instrumentation Centre) depending upon expertise and interest of the applicant.

Facilities for Research and Development activities exist in all Departments and the centres which are being continuously modernized with contemporary equipments and services. Excellent facilities exist for computing with Cyber 180/840. A main frame computer and a large number of mini and micro computers as well as a well stocked library with 1.6 lakh books, 2000 current periodicals and other research material.

PROFESSOR: Scale of Pay:
Rs. 5100-150-5700-200-7300.

ASSOCIATE PROFESSOR: Scale of Pay:
Rs. 4500-150-5700-200-6300.

TOTAL EMOLUMENTS ON THE MINIMUM OF THE SCALE:

	Including H.R.A.	Excluding H.R.A.
On basic pay of Rs. 5,100/-	Rs. 7,628/-	Rs. 6,628/-
On basic pay of Rs. 4,500/-	Rs. 6,930/-	Rs. 5,930/-

QUALIFICATION & EXPERIENCE:

PROFESSOR:
Ph.D. with first class or equivalent (in terms of Grades etc.) at the preceding degree in the appropriate branch with a very good academic record throughout and a minimum of 10 years teaching/research/industrial experience of which at least 5 years should be at the level of Assistant Professor/Associate Professor.

ASSOCIATE PROFESSOR:
Ph.D with first class or equivalent (in terms of Grades etc.) at the preceding degree in the appropriate branch with a very good academic record throughout and a minimum of 8 years teaching/research/industrial experience of which at least 3 years should be at the level of Assistant Professor.

AREAS OF INTEREST

DEPARTMENT OF AERONAUTICAL ENGINEERING

Aerodynamics: Supersonic and Hypersonic Aerodynamics and Flight Mechanics of Aerospace Vehicles, GFD; Aircraft Design: Preliminary Layout and/or component and detail Design of Aerospace Structures; Aircraft Propulsion: Aerospace Fuels, Combustion and Combustor Design, Rocket Propulsion; Control & Guidance: Avionics, Aircraft Instrumentation, Aeroservoelasticity, Aerospace Vehicle Dynamics and Control; Aircraft Structures: Computational Structural Mechanics, Fatigue and Fracture, Experimental Stress Analysis, Composites, Structural Dynamics, Aeroelasticity.

DEPARTMENT OF CHEMICAL ENGINEERING:

Electrochemical Engineering, Analysis and Modelling of Multiphase Systems, Heterogeneous Reactions, and Separations, Ceramic Engineering, Bio-chemical Processing and Bio-Separations, Interfacial Science and Engineering, Energy Engineering, Petroleum Engineering, Modern Separation Processes, Polymer Processes and Engineering, Process Dynamics and Control.

DEPARTMENT OF CHEMISTRY:

Theoretical Chemistry, Electrochemistry, Analytical Chemistry, Photochemistry, Coordination Chemistry, Polymer Chemistry, Bio-organic Chemistry, Synthetic Organic Chemistry, Chemistry of Organometallic Compounds, Bio-inorganic Chemistry.

DEPARTMENT OF CIVIL ENGINEERING:

Geotechnical Engineering, Structural Engineering, Transportation Engineering, Remote Sensing, Water Resources, Offshore Engineering.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING:

Information Systems, Intelligent Systems, Parallel Processing, Computer Communication and Software Systems.

DEPARTMENT OF ELECTRICAL ENGINEERING:

Control Systems, Communication Engineering, Power Systems, Microelectronics, Circuits and Systems.

DEPARTMENT OF EARTH SCIENCES:

Engineering Geology (with specialization in application of Remote Sensing and Hydro-Geology); Ore Techniques (with specialization in Geochemistry or Mineralization).

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES:

Economics: Macro and Regional Planning and Development, Technology and Development, Quantitative Economics, and Economics Systems; Sociology: Sociology of Development, Planning and Technology, Social Change, Communication, Urban Sociology, Social Theory; Psychology: Industrial Psychology, Organizational Psychology, Social Psychology, Women's Studies; Philosophy: Mathematical Logic, Ethics, Philosophy of Language; English: Third World Literature, Modern Drama, Modern Criticism, American Literature.

DEPARTMENT OF MATHEMATICS:

Numerical Analysis, Complex Analysis, Real Analysis, Operations Research, Mechanics of Solids, Probability Theory, Topology and Algebra.

DEPARTMENT OF MECHANICAL ENGINEERING:

Thermal and Fluid Engineering, Design Engineering, Production Engineering, Industrial Engineering and Operations Research, Instrumentation and Control.

UNIVERSITY OF KERALA

No. PR.1/1901/(1)/90. **Dated: 5th June, 1990.**

NOTIFICATION

Applications are invited from qualified candidates for appointment to the following posts in the University.

Sl.No.	Name of the Post	Department	No. of Post.	Scale of Pay	Remarks
1.	Director of College Development Council	University Service	1	Rs.2450-3600 (to be revised)	**On Contract, for 3 years.
2.	Professor	Hindi	1	*Rs.3050-4435	Open Merit
3.	Director & Professor	Advanced Centre for Vedanta Studies	1	*Rs.3050-4435	Open Merit
4.	Professor	Law	1	*Rs.3050-4435	Open Merit
5.	Director of Students Services	University Service	1	Rs.2470-3675 (Revised)	Open Merit
6.	Reader in Islamic History	Islamic Studies	1	*Rs.2470-3675	Open Merit
7.	Reader	Futures Studies	1	*Rs.2470-3675	Open Merit
8.	Lecturer	Computer Science	1	*Rs.1650-3175	Reserved for SC/ST
9.	Lecturer	Law	1	*Rs.1650-3175	Open Merit
10.	Lecturer	Futures Studies	2	*Rs.1650-3175	Post 1—Open Merit Post 2—Reserved for Ezhava Community.
11.	Technical Assistant	Institute of English	1	Rs.1330-2555	Open Merit. Under University Leadership Programme.
12.	Artist Photographer	Zoology	1	Rs.1250-2230	Open Merit

**The post shall continue only as long as it is sanctioned by the UGC.

*Subject to revision as per UGC Scales.

Note:—

In the case of reserved post, candidates belonging to the respective reserved community alone need apply.

Application forms and details regarding age, qualifications, etc. can be had from the Deputy Registrar (Administration), University of Kerala, Thiruvananthapuram 695 034 on requisition submitted along with State Bank of Travancore challan receipt (for Rs. 100 for serial numbers 1 to 7, Rs. 50/- for serial numbers 8 to 11 and Rs. 15/- for serial number 12) towards cost of application form. Candidates from outside the State may submit Crossed Indian Postal Order for the amount, payable to the Finance Officer, University of Kerala, Thiruvananthapuram 695 034 instead of challan receipt.

The last date for receipt of filled in applications in the University Office is 5th July, 1990.

UNIVERSITY BUILDINGS,
THIRUVANANTHAPURAM.

Prof. S.K. Rajagopal
REGISTRAR

DEPARTMENT OF METALLURGICAL ENGINEERING:
Materials Engineering with emphasis on processing and characterization of ceramic/polymers/electronic materials/high temperature materials; Thermodynamics and Process Metallurgy with background in Modelling; Mechanical working of materials with emphasis on CAD/CAM; Solidification Processing with emphasis on Welding and Casting, preferably with CAD/CAM background; Physical, Chemical and Mechanical Characterisation of Materials.

DEPARTMENT OF PHYSICS:
Theoretical Physics, Experimental Solid State, Nuclear, Molecular and Atomic Physics.

INDUSTRIAL DESIGN CENTRE (IDC):
Product Design, Product Ergonomics, Visual Communication.

Requirements of Qualifications and Experience for IDC only: (in lieu of the requirements prescribed in general at the beginning of this advertisement).

Should have a basic degree/diploma in Product Design/Industrial Design/Architecture/Applied Art/Engineering and a Ph.D. degree/postgraduate qualification in Design and/or related areas. Academic qualifications may be relaxed in the case of candidates having exceptional ability in professional work/research, etc. A minimum of 10 years experience in responsible capacity in teaching/consultancy/industry, with experience of independently guiding research/design teams is essential.

INTERDISCIPLINARY PROGRAMMES:

CENTRE FOR ENVIRONMENTAL SCIENCE & ENGINEERING (CESE):
Industrial Wastes Treatment; Technology Options for Waste Minimization, Resource Recovery etc.; Air Pollution Modelling, Monitoring, equipment Design for Control.

MATERIALS SCIENCE CENTRE:
Semiconductor Materials and Devices; Electronic Ceramics; Rapid solidification of Materials.

INDUSTRIAL ENGINEERING & OPERATIONS RESEARCH (IE&OR):
Optimization and Stochastic Modelling in Operations Research; Operations Research in Utilities and service sector; Computer aided decision systems.

INDUSTRIAL MANAGEMENT PROGRAMME:
Management of Technology and R&D; Strategic Planning; Industrial/Hi-Tech. Marketing.

SCHOOL OF BIOMEDICAL ENGINEERING:
Biorheology/Biomechanics/Computers in Medicine.

BIOSCIENCE AND ENGINEERING GROUP:
Microbiology; Cell Biology; Molecular Biology.

ENERGY SYSTEMS ENGINEERING:
Solar Thermal Applications; Wind Energy.

CORROSION SCIENCE AND ENGINEERING:
High Temperature Corrosion and its effect on Metals; Corrosion Protection Systems, Treatment of Surfaces; Corrosion Failure Analysis of Structures.

The posts carry allowances such as D.A., C.C.A., H.R.A. as per rules of the Institute which at present correspond to those admissible to Central Government employees stationed at Bombay. Depending upon the qualifications and experience, a higher salary may be offered. Candidates called for interview will be paid first class train fare from the place of their residence and back by the shortest route.

About 90% of the faculty live on the Campus. Institute tries to provide accommodation to all faculty. Initially the faculty might have to stay in transit accommodation which is adequate and comfortable.

Most facilities are available on the Campus including a bank, a post office, small shopping centre, two excellent schools (upto 12th standard) for children, and a well-equipped 65-bedded hospital; sports facilities include swimming pool, tennis, badminton and squash courts, a boating club and vast play grounds for field games; cultural facilities include film clubs, classical music societies, debating and drama and a hobbies club.

Persons employed in Government/Semi-Government Organizations or Educational Institutions must apply through proper channel.

Applications on standard forms are available from the Registrar, **Indian Institute of Technology, Powai, Bombay-400 076** on request. Such requests should be accompanied by self-addressed envelope (25 cmx10 cm). Application forms complete in all respects are to be submitted by Indian citizens accompanied with a detailed resume, copies of three key publications, a summary of research plans and teaching interests, and at least three professional referees' recommendations from amongst those well conversant with the applicant's work. Completed application forms alongwith these material should reach the Registrar, **Indian Institute of Technology, Bombay-400 076 on or before 30th June, 1990.** For applicants currently residing outside India, application on plain paper with a detailed curriculum vitae accompanied with the material mentioned will be accepted. The name of the post applied for should be indicated on the top of the envelope.

REGISTRAR

OFFICE OF THE REGISTRAR:

DIBRUGARH UNIVERSITY
DIBRUGARH

ADVERTISEMENT NO. 6/90

Applications are invited for the following posts by **5th July, 90.**

1. **One Prof. in Anthropology:** Open.
2. **One Reader in Commerce:** Open.
3. **One Lecturer in App. Geology:** Exploration Geophysics/Mining Geology/Mineralogy and Petrology/Geostatistics & Geomathematics/Engineering Geology.
4. **One Lecturer in Economics:** Open, desirable Mathematical Economics/Econometrics.

Scale of Pay for Prof.:
Rs. 4500-150-5700-200-7300/-p.m.
Reader: Rs. 3700-125-4700-150-5300/- p.m.
Lect.: Rs. 2200-75-2800-100-4000/- p.m.

Plus all other allowances as admissible under the Dibrugarh University rules in

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THE GANDHIGRAM RURAL INSTITUTE

(Deemed University)

Gandhigram-624 302 Dindigul Q.M. District, Tamilnadu

The last date for applying and submitting the filled up applications for various posts in Gandhigram Rural Institute appeared in 'The Hindu' dated 15th May and 'Indian Express' dated 16th May, 'University News' dated 28th May, 1990 is **EXTENDED upto 2.7.90.** The application form with prescribed qualification can be obtained by sending Rs. 25/- I.P.O./D.D. on Canara Bank, Gandhigram in favour of the Registrar with self-addressed stamped (Rs. 2.20) envelope.

Date: 6th June, 1990 **REGISTRAR**

force from time to time and the incumbent will be eligible for contributory P.F. and Gratuity on confirmations as per rules of the University.

E.Q. for Prof.: (a) An eminent scholar with published work of high quality actively engaged in research, ten years experience of teaching and/or research exp. or guiding research at doctorate level.

Or

(b) An outstanding scholar with established reputation who has made significant contributions to knowledge.

For Reader: (a) Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) Research, (ii) Innovations in teaching materials.

(b) Atleast five years experience of teaching and/or research provided that at least three years were as Lecturer or in equivalent positions.

For Lecturer: (a) A doctorate degree or research work of an equally high standard.

and

(b) Consistently good academic record with 1st class or high second class (in the seven point scale) Master's degree in a relevent subject from an Indian Universities or an equivalent degree from a foreign University.

Having regard to the need for developing interdisciplinary programmes, the degree in (a) and (b) above may be in relevent subject. Provided that if the selection committee is of the view that the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualification prescribed in (b) above for the post of Lecturer.

Provided further that if a candidate having a Doctor's degree or equivalent research work is not considered suitable, a person possessing consistent by a good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has done a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence or research work of equivalent high standard within eight years of his appointment as Lecturer failing which he will not be able to earn future increment until he fulfils these requirements.

Provided further that if a candidate has first class career (60% or above) all throughout from Matriculations upto the Master Degree level, such a candidate can be duly considered by the selection committee for appointment as Lecturer by relaxing the qualifications for research experience degree.

9 (Nine) copies of applications in plain papers giving full bio-data including (1) Name in full (in block letter), (2) Father's name, (3) Date of birth, (4) (a) Permanent add., (b) Present address, (5) Present occupation if any, (6) Present salary drawn if any and the salary expected, (7) Academic career in detail from Matriculations/Upwards showing div./class agreegate P.C. of marks School/College/University from which appeared (Attested copies of mark-sheets, certificate etc. should be enclosed), (8) Details of appointment held with designation, duration, nature of work and name of employers, (9) Research contributions with copies of reprints or research exp. supported by documentary evidence, (10) Name and address of 2 (two) refrees not related to the candidate.

Fee in crossed I.P.O. for Rs. 10/- (Rupees Ten) only drawn in favour of the "Registrar, Dibrugarh University" should accompany the applications.

The number of this advertisement and the name of the post applied for must be referred to in the applications. Persons already in service should apply through proper channel or with "No objection certificate" from the present employer.

Applications not in conformity with the above requirement will not be entertained.

Candidates will be required to appear before and interview if and when called for.

Dr. D.H. Goswami
REGISTRAR

INDIAN INSTITUTE OF ASTROPHYSICS

BANGALORE-560 034.

ADVERTISEMENT NO. 1/IIA/90-91

Applications are invited from Indian Nationals for the following posts:—

1. **Fellow/Electronics Engineer:** 1 Post (UR)

Scale of Pay: Rs. 2200-75-2800-EB-100-4000

Qualifications (Minimum):

M.E., or M.Tech degree in Electronics/Electrical Communication Engineering/Computer Science or B.E./B.Tech. with first class in Electronics with 3 year's experience in designing electronics systems using analog and digital integrated circuits.

Desirable: Knowledge of digital control systems.

2. **Senior Research Assistant/Senior Technical Assistant:** 3 Posts (UR)

Scale of Pay: Rs. 1640-60-2600-EB-75-2900

Qualifications: Master's degree in Physics/Astronomy.

OR

B.E./B.Tech. with first class in Electronics/Electrical Engineering/Computer Science.

OR

Master's degree in Physics with Electronics as a special subject with experience in digital circuits.

HOW TO APPLY:

1. Applications on plain paper stating (a) Post applied for (b) Name in full (c) Father's name (d) Age/Date of Birth (e) Qualifications giving names of the Institution attended, examinations passed with year and grade commencing from School Leaving Certificate Exam. (f) Permanent address (g) Present address (h) Address for communication (i) Details of previous experience (j) Details of present employment, address of the employer, and present salary (k) Whether Ex-Serviceman/SC/ST together with copies of qualification, age certificates (SC/ST candidates should attach a copy of the caste certificate) should reach the ADMINISTRATIVE OFFICER, INDIAN INSTITUTE OF ASTROPHYSICS, BANGALORE-560 034, on or before **10th JULY 1990.**
2. Separate applications are required for each post. Please write clearly the post applied for on the envelope.
3. All the above posts carry allowances admissible under the rules of the Institute, which are the same as applicable to Central Government employees.
4. Those employed in Government departments/Public Sector Undertakings should apply through proper channel.
5. Age limit for all unreserved positions is 35 years as on 10.7.1990 relaxable in exceptionally qualified cases. For the reserved positions, the age limit is 40 years.
6. Out station candidates called for interview will be paid second class return Railway/Bus fare by the shortest route.

NO INTERIM ENQUIRIES WILL BE ENTERTAINED, CANVASSING IN ANY FORM WILL BE A DISQUALIFICATION.

NIZAM'S INSTITUTE OF MEDICAL SCIENCES)

(A University established under the State Act)

Panjagutta, Hyderabad-500 482.

NOTIFICATION

Applications are invited from female candidates not exceeding 35 years of age for the post of Assistant Professor in Gynaecology in the scale of Rs. 1800-75-2100-100-2400 (total initial emoluments Rs. 6,594.60) on or before **30.6.90**. Candidate(s) should possess M.D./M.S. (Obstetrics & Gynaecology with 5 years experience in gynaecology with special emphasis on gynaec-oncology and 6 publications.

2. Application forms can be obtained by sending a Demand Draft for Rs. 50/- in favour of the Director, N.I.M.S. Hyderabad with Rs. 9/- stamped self-addressed envelope of size 22 × 10 cms. or by paying Rs. 50/- in person.

Dr. Kakarla Subbarao
DIRECTOR

WANTED TEACHING POSITION

Ten years overseas experienced, post-graduate and undergraduate teaching and research guidance in Botany: general and special: Mycology and Plant Pathology. Shall join on short notice for long or short-term teaching assignments.

Address for correspondence: B-1/14 Mahavir Shikhar, Lal Bahadur Shastri Marg, Bombay-400080.

Dr. Veeramani Subramoniam
(C.S.I.R REG. NO. 24197)

It pays

to

Advertise

in

UNIVERSITY NEWS

KUMAUN UNIVERSITY NAINITAL

Dated 26.5.90

Advertisement No. 250

Applications for the following posts are invited by **5 July, 1990** on prescribed form obtainable from the Office of the Registrar, Kumaun University, Nainital-263 001 U.P., India by sending self-addressed 9"×6" envelope and crossed Postal Order/Bank Draft for Rs. 15/- payable to Finance Officer, Kumaun University, Nainital. Money Orders are not acceptable. Candidates who have already applied in response of Advt. No. 1193, dated 18.1.90 for the post of Prof. Mathematics need not apply again. However, they may send their latest additions in qualification, change of address etc. if any.

Sl.No.	Name of post	No. of post	Scale of pay
1.	Professor Mathematics	1TLR	4500-7500
2.	Lecturer Education	1R	2200-4000
3.	Lecturer Pol. Science	1Lv	2200-4000

Note: TLR imply-temporary likely to be regular, Lv imply-leave vacancy, R-imply regular.

QUALIFICATIONS

1. FOR THE POST OF PROFESSOR MATHEMATICS

Either–Eminent scholarship with published work of high quality and active engagement in research and 10 years experience of teaching or research and experience of guiding research at doctorate level.

OR

Outstanding scholarship with established reputation for significant contribution to knowledge.

2. FOR THE POST OF LECTURER POL. SCIENCE

(a) Master's degree or an equivalent degree of a foreign university in the relevant subject with atleast 55% marks or its equivalent grade with consistently good academic record as in (b) below:

(b) Candidate having obtained either 55% marks in Bachelor's degree examination and second class in intermediate examination or 50% marks in each of the above two examinations separately.

3. FOR THE POST OF LECTURER EDUCATION

(a) Master's degree or an equivalent degree of a foreign university in education (that is an M.Ed. degree) with atleast 55% marks or its equivalent grade– **and**

(b) A candidate must have obtained either 55% marks in B.Ed. degree and second division in any other Bachelor's degree examination or 50% marks in each of two said examinations separately.

Further details regarding service terms and permissible relaxation if any will be provided with application form. Preference will be given to SC/ST disabled candidates if otherwise considered suitable by the Selection Committee. Application form will not be sent by post after **30.6.90.** Applications received after due date and Bio-data on plain papers are not acceptable

N.C. Pande
REGISTRAR

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

Invites applications from exceptionally qualified candidates for **FACULTY POSITIONS at the** ASSISTANT PROFESSOR level for its various **ACADEMIC DEPARTMENTS AND INTERDISCIPLINARY PROGRAMMES.**

Candidates should have a distinguished academic record, excellent communication skills, a commitment of high quality undergraduate and postgraduate education and teaching, exceptional potential for creative research and the talents and motivation to develop a research programme of national recognition. The Institute encourages interaction of the faculty with the industry, other research and professional Institutions. Joint appointments may be made between the departments, interdisciplinary programmes, and the Centres (Advanced Centre for Research in Electronics, Computer Aided Design Centre, Centre of Studies in Resources Engineering, Centre for Technology Alternatives for Rural Areas, Regional Sophisticated Instrumentation Centre) depending upon expertise and interest of the applicant.

Facilities for Research and Development activities exist in all the Departments and the Centres which are being continuously modernized with contemporary equipments and services. Excellent facilities exist for computing with Cyber 180/840. A main frame computer and a large number of mini and micro computers as well as a well-stocked library with 1.6 lakh books, 2000 current periodicals and other research material.

ASSISTANT PROFESSOR: Scale of pay: Rs. 3700-125-4950-150-5700.

TOTAL EMOLUMENTS ON THE MINIMUM OF THE SCALE:

	INCLUDING H.R.A.	EXCLUDING H.R.A.
On basic pay of Rs. 3700/-	Rs. 5,930/-	Rs. 5,130/-

QUALIFICATIONS & EXPERIENCE:

Ph.D. with first class or equivalent (in terms of Grades etc.) at the preceding degree in the appropriate branch with a very good academic record throughout and at least three years teaching/research industrial experience.

AREAS OF INTEREST:

DEPARTMENT OF AERONAUTICAL ENGINEERING:

Dynamics of Aerospace Vehicles, Fluid & Thermal Sciences with Aerospace applications.

DEPARTMENT OF CHEMICAL ENGINEERING:

Interfacial Science & Engineering; Integrated Process and Equipment Design with exposure to Computer Aided Design; Biochemical Processing and Bioseparations, Food Engineering.

DEPARTMENT OF CHEMISTRY:

Physical Chemistry of Polymers, Experimental Thermodynamics and Kinetics, Physical Organic Chemistry, Inorganic Reaction Mechanics, Solid State and Catalysis, Biophysics.

DEPARTMENT OF CIVIL ENGINEERING:

Foundation Engineering, Soil Dynamics, Soil Structure Interaction, Rock Mechanics, Remote Sensing, Transportation System Engineering, Water Resources Systems.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING:

Theoretical Computer Science, Intelligent Systems:

DEPARTMENT OF ELECTRICAL ENGINEERING:

Power Electronics and Drives, Energy Conversion, Power Systems, Switchgear and Protection, Microelectronics, Communication Systems, Digital Communication, Communication Electronics, Signal Processing, Microwave and Optical Communicatio, Electronic Instrumentation, Instrumentation Systems, Microprocessor Systems Design.

DEPARTMENT OF EARTH SCIENCES:

Exploration Geophysics (with experience in Geophysical prospecting and exploration for oil/ore deposits using mainly seismic and gravity methods); Hydrogeology/Marine Geology (with experience in exploration for ground water/marine mineral resources); Petroleum geology (with experience in Modern techniques of oil exploration/exploitation); Structural Geology (preferably with experience in experimental structural geology).

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES:

Economics: Macro and Regional Planning and Development, Technology and Development, Quantitative Economics, Economic systems; **Sociology:** Sociology of Development, Planning and Technology, Social Change, Communication; **Psychology:** Social Psychology, Organizational Structure and Administration; **Philosophy:** Social and Political Philosophy, History and Philosophy of Science, Cognitive Science; **English:** English Language teaching, Linguistics, Comparative Literature.

DEPARTMENT OF MATHEMATICS:

Theoretical Computer Science, Statistics, Computational Fluid Mechanics.

DEPARTMENT OF MECHANICAL ENGINEERING:

Thermal and Fluid Engineering with emphasis on Experimental Methods; Thermal Equipment such as Turbomachines, etc. with emphasis on Design, Development and Performance Evaluation; Applied Tribology; Design Engineering with design experience in industry/Industrial R&D; Manufacturing Processes; Computer Applications in Manufacturing; Machine Tool Engineering; Industrial Engineering with emphasis on Manufacturing Systems.

DEPARTMENT OF METALLURGICAL ENGINEERING:

Materials Engineering with emphasis on processing and characterization of ceramics/polymers/electronic materials/high temperature materials; Thermodynamics and Process Metallurgy with background in Modelling; Mechanical working of materials with emphasis on CAD/CAM; Solidification Processing with emphasis on Welding and Casting, preferably with CAD/CAM background; Physical, Chemical and Mechanical Characterization of Materials.

DEPARTMENT OF PHYSICS:

Theoretical Physics, Experimental Solid State and Atomic Physics.

INDUSTRIAL DESIGN CENTRE:

Visual Communication with specialization in one of the following areas:

Video, Computer Graphics, Animation; Photography, Audio/Visuals; Print and Publishing with emphasis on electronic publishing. Desk top publishing and Reproduction technologies.

Requirements of Qualifications and Experience for IDC only: (in lieu of the requirements prescribed in general at the beginning of this advertisement)

Should have a basic degree/diploma in Product Design/Industrial Design/Architecture/Applied Art/Engineering and a Ph.D. degree/postgraduate qualification in Design and/or related areas. Academic qualifications may be relaxed in the case of candidates having exceptional ability in professional work/research, etc. A minimum of 3 years experience in responsible capacity in teaching/consultancy/industry, with experience of independently guiding research/design teams is essential.

INTERDISCIPLINARY PROGRAMMES:

CENTRE FOR ENVIRONMENTAL SCIENCE AND ENGINEERING:

Hazardous Waste Management including Risk Analysis, Ecological Modelling and Impact Assessment; Environmental Systems Optimizations.

MATERIALS SCIENCE CENTRE:

Applied Magnetics; Polymer Science and Engineering; Semiconductor Materials and Devices.

INDUSTRIAL ENGINEERING AND OPERATIONS RESEARCH:
Optimization and Stochastic Modelling in Operations Research; Operations Research in Utilities and services sector; Computer aided decision systems.

INDUSTRIAL MANAGEMENT PROGRAMME:
Management of Technology and R&D; Strategic Planning; Industrial/Hi-Tech. Marketing.

SCHOOL OF BIOMEDICAL ENGINEERING:
Medical Science: Pharmacology or Orthopaedics; Biophysics, Biomedical Instrumentation/Computers in Medical Sciences/Aids for Handicapped/Physiological fluid Dynamics.

BIOSCIENCE AND ENGINEERING GROUP:
Microbiology; Cell Biology; Molecular Biology.

RELIABILITY ENGINEERING:
Reliability in Engineering Design, Quality Assurance, Maintenance Engineering and Management, Electronics.

ENERGY SYSTEMS ENGINEERING:
Energy Audit/Conservation/Management; Energy Policy and Planning: Energy Systems Modelling; Electrical Power Systems and Drives/Electrical Energy Conservation/Photovoltaic Applications.

CORROSION SCIENCE AND ENGINEERING:
High Temperature Corrosion and its effect on Metals; Corrosion Protection Systems, Treatment of Surfaces; Corrosion Failure Analysis of Structures.

The posts carry allowances such as D.A., C.C.A., H.R.A. as per rules of the Institute which at present correspond to those admissible to Central Government employees stationed at Bombay. Depending upon the qualifications and experience, a higher salary may be offered. Candidates called for interview will be paid first class train fare from the place of their residence and back by the shortest route.

About 90% of the faculty live on the Campus. Institute tries to provide accommodation to all faculty. Initially the faculty might have to stay in transit accommodation which is adequate and comfortable.

Most facilities are available on the Campus including a bank, a post office, a small shopping centre, two excellent schools (upto 12th standard) for children, and a well-equipped 65-bedded hospital, sports facilities include swimming pool, tennis, badminton and squash courts, a boating club and vast play grounds for field games, cultural facilities include film clubs, classical music societies, debating and drama and a hobbies club.

Persons employed in Government/Semi-Government Organisations or Educational Institutions must apply through proper channel.

Applications on standard forms are available from the Registrar, **Indian Institute of Technology, Powai, Bombay-400 076** on request. Such requests should be accompanied by self-addressed envelope (25 cm. × 10 cm). Application forms complete in all respects are to be submitted by Indian citizens accompanied with a detailed resume, copies of three key publications, a summary of research plans and teaching interests, and at least three professional referees' recommendations from amongst those well conversant with the applicant's work.

Completed application forms alongwith these materials should reach the Registrar, **Indian Institute of Technology, Bombay-400 076 on or before 30th June, 1990.** For applicants currently residing outside India, application on plain paper with a detailed curriculum vitae accompanied with the material mentioned will be accepted. The name of the post applied for should be indicated on the top of the envelope.

REGISTRAR

ADVT NO E-20/90-91

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH

Advt. No. SRF/RA-EMR-I/90

This is to bring to the attention of all concerned that CSIR has invited applications for awarding **SENIOR RESEARCH FELLOWSHIPS AND RESEARCH ASSOCIATESHIPS** vide an advertisement appearing in **June 16, 1990 issue of Employment News.** Eligibility conditions and application proforma are published alongwith the advertisement. The application form may be cut out or copied from advertisement and used.

The last date of receiving application is **31st July, 1990.** The application duly completed in all respects should be sent to the **Under Secretary, Extra Mural Research Division, Human Resource Development Group, CSIR Complex,** Dr. K.S. Krishnan Marg, **Pusa, NPL Campus, New Delhi-110 012.**

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams: ASINDU, Phones: 3315105, 3313390, 3312305, 3310059 and 3312429 Telex: 31-66180 AIU IN
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ISSN—0566-2257

University News

MONDAY, JUNE 25, 1990

Rs. 2.50

Significance of Women's Studies

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Restructuring of Postgraduate Education

●

Mecca of Engineering Education

●

Tapping Engineering Talent

●

Physical Education & Sports Sciences in Higher Education

●

Learning Without Frontiers

ADMISSION NOTICE

Applications for admission for the session commencing from August, 1990 in the following courses are invited in the prescribed form available from the Dean, NEHU, School of Agricultural Sciences and Rural Development, Medziphema – 797 106, Nagaland and the undersigned on payment of Rs. 5/- (Rupees five) only in the form of Indian Postal Order payable to the 'North-Eastern Hill University' Shillong accompanied by a self-addressed stamped Re 1/- envelope (28×13 cm) or in cash so as to reach the Dean, NEHU, School of Agricultural Sciences & Rural Development, Medziphema – 797 106, Nagaland latest by **15th July, 1990.**

1. Pre-University (Ag)	Two years course
2. B.Sc. (Ag)	Four years course
3. M.Sc. (Ag) Horticulture	Two years course
*4. M.Sc. (Ag) Soil Conservation	Two years course
*5. M.Sc. (Ag) Rural Development Planning	Two years course

Eligibility:

1. For admission to the Pre-University (Ag) course a candidate must have passed Matriculation/HSLCE or any other equivalent examination with Science and Mathematics, and securing not less than 45% marks in aggregate (excluding additional paper), relaxable by 5% in case of Scheduled Tribe/Scheduled Caste candidates.
2. For admission to the B.Sc. (Ag) course a candidate must have passed Pre-University (Science) with Mathematics and Biology, or in agriculture stream with a minimum marks of 50% in aggregate (excluding additional papers), relaxable by 5% in case of Scheduled Tribe/Scheduled Caste candidates.
3. M.Sc. (Ag) programme in various disciplines shall be opened to those who have passed B.Sc. (Ag) of this University or an equivalent degree from recognised institution with a minimum of 60% of marks or equivalent overall grade point average. Also student must have secured 60% marks in all the courses of concerned discipline. The relevant course in Soil Conservation will consist of Soil Science, Agricultural Engineering and Agronomy. A relaxation of 5% would be given to Scheduled Tribe/Scheduled Caste candidate from School of Agricultural Sciences & Rural Development and those with minimum of three years continuous service.

Distribution of seats will be as follows:

Sl. No.	State	In P.U. (Ag)	In B.Sc. (Ag)	In M.Sc. (Ag) Horticulture	In M.Sc. (Ag) Soil Science	In M.Sc. (Ag) Rural Dev.
1.	Arunachal Pradesh	3	2	60% reserved for SC/ST candidate (3 out of 5)		
2.	Meghalaya	10	5			
3.	Mizoram	7	3			
4.	Nagaland	13	7			
5.	Manipur	1	—			
6.	Tripura	1	—			
7.	Open Seats	3	1	20% for open (1 out of 5)		
8.	University quota	4	2	20% for University Quota (1 out of 5)		
	Total	42	20	5	5	5

Selection of candidate for M.Sc. (Ag) is done purely on the basis of merit and other qualifications and experience. The candidates desiring (All category) admission in M.Sc. (Ag) may send their application to the Dean, NEHU, School of Agricultural Sciences & Rural Development, Medziphema –? 797 106, Nagaland.

For seats allotted to various states for P.U. and B.Sc. degree programme, the respective state authorities shall send their nominations having fulfilled the prescribed conditions to the Dean, NEHU, School of Agricultural Sciences & Rural Development, Medziphema – 797 106, Nagaland. Applications against the University quota should be sent to the undersigned.

Last date for submission of applications:

The last date for submission of application to the Dean, NEHU, School of Agricultural Sciences & Rural Development, Medziphema – 797 106, Nagaland or to the undersigned whoever is applicable is **15th July, 1990.**

** The University reserves the right for taking or not taking candidates for admission into these two Departments.*

H.W.T. Syiem
OFFICER-ON-SPECIAL DUTY
NEHU, Shillong.

UNIVERSITY NEWS

VOL. XXVIII JUNE 25
No. 26 1990
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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
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SIGNIFICANCE OF WOMEN'S STUDIES

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The need to incorporate women's issues in Higher Education system has been felt the world over for nearly two decades now. Women studies were pioneered in the United States where they are most developed and established today. In other Western countries, women's studies have emerged only during the last decade or so and initially operated at a low key. However, women's studies in the West have survived and have been legitimized in the educational system.

In the Asian region, the concern for making women's studies part of the university system has been a feature of the last decade. Considerable progress has been made in systematic studies focusing on women's issues introducing women's studies in the teaching programme.

India seems to be occupying a significant position in terms of quantity and diversity of material in women's studies. The investigations of the Committee on the Status of Women in India (CSWI) represent the watershed in the field of women's studies in the country. Starting with a new perspective, these investigations collated, for the first time, a large body of data on different aspects of women's lives, and identified unexpected trends in women's situation such as declining sex ratio, declining economic participation rate and growing gaps in life expectancy and mortality rate between men and women.

Women's position has worsened considerably in almost every sphere with the exception of some gains in education and employment for middle-class women. Women have been found in least-paid jobs, working long hours, and bearing full responsibility for the home by fetching fuel and water, by bringing up children and caring the sick and the aged in their families. What is worse, there has been growing violence against women—rape, wife-battering, dowry deaths and prostitution.

However, there has been a growing acceptance of the notion that women have to be considered as equal participants in shaping the new society rather than as victims to be saved or objects of welfare. The researches of the indologists, sociologists, social historians and anthropologists, have highlighted inhuman social practices. The conventional methods of studying women are being replaced by using case studies, oral histories, and folk material.

The purpose of women's studies is not just inclusion of material on women, but to stimulate desirable changes in women's status. The idea is to examine and redefine the conceptual frameworks of disciplines so as to evolve new formulations which could accommodate women's experiences. Women's studies should not be just one more discipline added which would perpetuate the elitist bias of an academic institution. The organic knowledge of women has to be enriched through interaction of theory and field experience. Women's studies have to be a bridge between the academic and the grassroot workers. In short, women's studies in India should be considered, both as an instrument for women's development and as a necessary step to develop the knowledge base of various disciplines.

The objectives of incorporating women's studies within the university system are both academic and social. These are:

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Restructuring of Postgraduate Education in Goa University

S.G. Deo*

There has been a continuous demand from the educationists and social leaders that the higher education in India should be tailored to achieve national goals. The Kothari Commission report, subsequent publications of UGC, several convocation addresses given by prominent personalities, and the report, 'The Challenge of Education, a policy perspective' have stressed the need for a change in the educational pattern in India. It is expected that the change should include modernized courses having social relevance and stronger linkage with the needs of the society, interdisciplinary studies programmes, intensified training, involvement of students for self-reliance and new and realistic methods of evaluation of achievement of students.

Although much has been said about the revamping of higher education, it is experienced that very little has actually been done by our universities. Most of the universities still follow the scheme of traditional courses with some minor changes. Some universities adopted semester pattern of examinations but after experience they have switched back to yearly examination system.

In Goa, the undergraduate (UG) and the postgraduate (PG) education was a part of the University of Bombay till 1985 when Goa University was established. The syllabi, schemes of evaluation, recommended books were the same as suggested by the Bombay University for more than 20 years. After the establishment of a new university in Goa the discussion started in right earnest to design new schemes of UG & PG pattern of education. The delinking process from Bombay University mainly started from the year 1988. Establishment of the new university in Goa provided an opportunity to revise the syllabi.

While the discussions about reshaping the higher education in Goa were in progress, the Academic Council of the University recommended that the scheme of education should undergo a complete change to suit the regional and national needs. It was also suggested to increase the learning pressure on students so that new modalities could be introduced with success and the available infrastructure like buildings, libraries, laboratories etc. were put to the full utilization. It was stated that one of the reasons why IIT's have been successful institutions is that the students are kept constantly busy during the academic year and their potential of acquiring knowledge is fully exploited. Another need stressed was to introduce interdisciplinary courses and possibly inter-departmental faculty programmes.

The Committee appointed to draw the new scheme was naturally loaded with several expectations with limited number of resources available at its disposal. Generally the faculty available for each department in the university on the average was about 6 which included one Professor, two Readers and three Lecturers. Another constraint was to keep track of response and the reaction of the students community. It was then suggested that the pattern of PG education should undergo a change to begin with. The Committee therefore accepted as a basis that a student joining a PG Department continued to have the same old UG background at the degree level. Based on this premise the committee decided to draw the new plans. It was further decided that the new modalities be designed to begin with for the faculties of Arts, Science and Commerce only. This Committee met on several occasions, debated diagonally opposite views and finally came out with modified form of PG scheme of education in Goa University.

The main features of this scheme are listed below:

It was thought that the span of learning in each department be divided into 2 categories namely, the Core part and the Elective part. It was noted that the fundamentals of each discipline of knowledge be taught at all times in any scheme of education. Once these basics were decided it was possible to tackle the remaining areas of a discipline by dividing it into several elective courses.

· The Committee therefore recommended that each Board of Studies should decide the syllabus of eight core courses. Each course is to include all essential parts of the discipline based on which the students would be able to understand the remaining areas of that discipline. Thus each Board of Studies has prepared eight core courses which are compulsory for all students in a Department. The Boards of Studies were advised to prepare syallabi for large number of elective courses and it was made mandatory that each student has to pass eight elective courses. Thus to acquire a Postgraduate degree it is now necessary for a student to clear eight core and eight elective courses as minimum requirement. Departments requiring additional training needs are permitted to introduce upto ten elective courses. In order to introduce interdisciplinary and inter-departmental faculty facet of the scheme, it was recommended that a student belonging to one Department may be permitted to take upto two elective courses from other Department-Faculty. The courses of this type are to be framed and approved by the joint Boards of Studies of concerned departments. This provision offers a student the facility to learn allied courses from other departments. For example, a student in Economics can take in addition to 8 Core & 6 Elective Courses from Economics Department, upto two elective courses in Political Science, Sociology, History or Latin American Studies, Mathematics & Statistics. The department itself can introduce some interdisciplinary courses.

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It was also noted that some bright students should be provided additional facilities in the scheme to exploit their capacity. The provisions have been incorporated in the new scheme wherein a bright student may be allowed to submit dissertation project in lieu of two elective courses by associating himself with a teacher of the Department for guidance. It is expected that a student writing dissertation will be referring research journals in the Library and thus will be exposed to wider stretch of knowledge.

The few examples given below explain how the Boards of Studies have tried to take advantage of the scheme and introduced some new elective courses.

The Department of English has framed the syllabi for an elective course in Stylistics, Translation—Theory & Practice, Indian Literature in English Translation. Hindi Department has introduced an elective course in Sanskrit, Poetics, Marxist approach to literature, Rise of Press and Reading Public in 19th century. Marathi Department has framed a course on Dalit Literature, Periodicals in Marathi, Christ Puran and Christian Tradition of Marathi literature. The History Department has introduced an elective course in Archives Keeping, while Philosophy Department has introduced a course in Philosophy of Social Sciences. Political Science Department has framed a course on Diplomacy or Peace Studies.

Chemistry Department has a course in Mathematical Preparations and Computational Methods, Chromatographic Methods, Superconductivity, Pest Control, Petro-chemicals, etc. Mathematics Department has on their list courses for Mathematical Models for Population Ecology and Oceanographic Fluid Mechanics. The other departments have similarly framed courses involving new trends.

The scheme has been in operation from July 1989 and one academic year with restructured scheme is already over. The Boards of Studies have already framed core courses and are in the process of framing new elective courses. It has been suggested that each department draws sufficiently more elective courses so as to provide diversified choice in each academic year.

The operational part of the restructured scheme is as follows: Each core course is to be taught in 56 one hour lectures, while each elective course is to be taught in 36 one hour lectures. Taking into account eight core courses and eight to ten elective courses for completing academic requirements for Master's Degree, the number of lectures a student has to attend are about 736 to 808. In the old pattern with eight papers course at the PG level, a student used to attend about 500 to 550 lectures during 2 academic years. (Bombay University had recommended 48 lectures per paper). The course designed in terms of number of lectures brings an exactitude in the academic planning. A teacher can engage students for additional lectures after taking into account holidays or other extra-curricular activities. The increase in number of lectures has provided an opportunity to incorporate some new topics in the syllabi.

Generally, a teacher has to take three lectures and one tutorial every week for each course in which laboratory work is not involved. Suitable combination of lectures and practicals are suggested in those courses in which laboratory work is involved. All teachers in a department together form a committee called 'Departmental Council' which monitors the running of the new programme. This committee attends to the local problems, decides time-table and the examination policy and also frames new elective courses for the consideration of the Boards of Studies. Every teacher in a department is expected to teach two core courses and two elective courses during an academic year. Depending upon the availability of teachers it is possible to give relaxation in teaching workload to a teacher so that he can attend to research work or prepare for a new elective course in the following year.

The academic programme designed on these lines is to be properly supported by a suitable evaluation pattern. Continuous evaluation of a student by a teacher has been incorporated in the present scheme. For a core course there is a mid-point internal test carrying 20 marks. In addition, a student has to complete a Home-Assignment test of 20 marks. The department is free to decide the nature of these tests. Various methods have been adopted by different departments to conduct internal tests. The final examination in each core course carries 60 marks and is conducted by the university by appointing a Board of Examiners consisting of internal and external examiners.

Each elective course has a mid-point test carrying 20 marks and a final examination carrying 80 marks. The entire examination is conducted by a teacher who teaches the course. Thus the evaluation pattern consists of internal and external examiners. A student offering a dissertation in lieu of 2 elective courses is to give a viva-voce examination together with the dissertation evaluation.

The scheme also envisages that for some elective courses, Part-I and Part-II students may come together when such a course is not sequential and the prerequisite requirements for the course are achieved by all the students attending such a course. It has been estimated that a faculty of six teachers in a department can manage to teach as many as eight core courses and about 20 elective courses.

Flow charts for the introduction of core and elective courses in an academic year are being included in the scheme. The internal tests are evenly spread during the year. It has been noted that a visiting professor under UGC scheme can give an elective course in a specialization in seven to nine weeks by taking 36 lectures and then he can conduct the final examination for such a course and complete the evaluation.

Since the core and elective courses are at different levels it has been suggested that the core course carries 6 credits while an elective course carries 4 credits. To complete Postgraduate degree course a student has to acquire 80 credits. Although the credit system has been suggested the assignment of marks also continues. A suitable formula has been suggested by the Committee to evaluate the performance index of a student to decide his grades.

In case of complaints by students about the new scheme a Grievance Committee has been suggested in the ordinance which is empowered to settle the issues raised by the students and the teachers.

The restructured programme will enter into its second year of operation in the academic year 1990-91. During the first year not many serious complaints were received. By and large the scheme experienced smooth sailing in 1989-90. It appears that this pattern of teaching and evaluation will be successful if the number of students in a discipline are manageable. However, it is claimed that the students will surely be benefited if the scheme is sincerely implemented. □

Significance of Women's Studies

(Continued from page 1)

(a) to change the present attitude values in society regarding women's roles and rights to one of equal participation in all social, economic and political processes and national and international development;

(b) to promote awareness among women and men of the need to develop and utilize women's full potential as resources for national development in its economic, political and socio-cultural aspects;

(c) to counter the reactionary forces emanating from certain sections of the media, economic, social and political institutions that encourage the demotion of women from productive to mere reproductive roles;

(d) to revitalize university education, bringing it closer to burning social issues, to work for their solution, and to produce sensitive persons able to play more committed and meaningful roles in developmental activities for women in all sectors;

(e) to promote values of social equality including gender equality, secularism, socialism and democracy.

(f) to update university curricula by incorporating the results of new scholarship.

(g) to promote increased collaboration between different disciplines in teaching, curriculum designing, research and extension activities since women's studies are interdisciplinary by nature;

(h) to generate new and organic knowledge through intensive field work; and

(i) to contribute to global debate on women's question through rediscovery of the debate in India from ancient to contemporary periods by means of research and translation from Indian literature including folk literature.

It is gratifying to note that the UGC has accepted the need for introducing women's studies in the curriculum of the university system by providing financial support to various activities like organizing seminars, workshops, and summer institutes, conducting researches on women and above all, encouraging establishment of Centres of Women's Studies at Departments of Universities. Quite a few committed individual faculty members have taken the initiative of starting cells or units of women's studies in their universities and colleges. In the face of this supportive and congenial climate and keeping in view the multiple functions which women's studies in India ought to perform, every university in the country should introduce women's studies as part of its curricula □

Roorkee: Mecca of Engineering Education

M.S. Rana*

The Thomason College (1847-1948 rechristened as University of Roorkee in 1948) the oldest engineering college in India, owes its birth to the waters of Mother Ganges. Without the River Ganges there would have been no canal of that name, and without the canal, no college at Roorkee. The Ganges Canal soon reached maturity, but its offspring the Thomason College, planned by men of wisdom and foresight grew steadily from the smallest beginnings till it attained the proud position which it now holds as one of the leading educational institutions of the East with great traditions and a reputation second to none.

Until the year 1854, the institution at Roorkee continued to be known as the "Roorkee College" but in that year the Honourable Court of Directors instituted a scholarship to be called the Thomason Scholarship, in memory of Mr. Thomason and the Governor-General ordered the Roorkee College to be called the Thomason College of Civil Engineering.

The first pupils were enrolled on the Ist of January 1848 by the transfer to the Principal of a new native lads who had been learning levelling under Major W.E. Baker, of the Engineers, then Director of the Ganges Canal. Work was at first carried on in tents till the college buildings were erected. The college was designed by Lt. George Price of the first Bengal Fusiliers. The present impressive edifice in the Renaissance style stands to the credit of the vision and design of that junior infantry officer.

To begin with three teaching departments were set up. The first department was to impart instructions for the appointment of Sub-Assistant Civil Engineers. The entrants to this course were required to be proficient in English language, geometry, algebra, mansuration, plane and spherical trigonometry, conic sections and mechanics. The second department was set up to train European non-commissioned officers and soldiers with a view to their employment as Overseer in the Department of Public Works. Admission to the third department was open to native youth desirous of instruction in surveying, levelling and plan drawing. A fair acquaintance with arithmetic in the native form, and an ability to read and write urdu in the persian characters were the qualifications required for this course. The total number of intake in all the three departments was limited to thirty four. All of them were stipendiary students with the facility of free quarter on the campus. To ensure that only highly motivated students are admitted, the college had introduced Roorkee Entrance Examination system in 1895. Perhaps this concept of screening the ability of students before admission was not prevalent in any other institution in the world. The entrance examination was conducted with the highest degree of integrity. The eleven examination centres were spread over the length and breadth of British India ranging from Rangoon to Lahore. By the turn of the 19th century Roorkee had become synonymous with engineering. Its alumni had won high laurels in civil and military engineering works in the country and abroad. They had the proud privilege of designing and execution of all major railway networks, irrigation projects, civil and military works and land survey works. Besides providing engineering education, Roorkee also introduced the British system of campus life. Discipline, customs and manners of British public schools were transplanted in Roorkee. The progress of each student from the date of his admission was watched and marks were allotted for his work in tutorials, class tests, survey field work, games, military training, conduct and discipline. The "Thomasonian Society", the "Dramatic Society" and the "Lion Magazine" provided ample opportunity to students for self expression and artistic creation. The college had its own cooperative store, where one could buy sundry articles of daily use, a dairy, hospital, books and stationery shop, a bakery, sweets tailors and even shoemakers shop. All these facilities were provided so that the college fraternity felt at home on the campus and devoted their full hours in teaching and learning. After all "the aim of the college had been to train practical engineers and inculcate in the minds of students the dignity of labour, a keen sense of discipline, strong character, high ideals and worthy purposes". By the close of the nineteenth century the college had earned a name in engineering education in the world. It attracted students from Africa, Persia, Burma, Sikkim, Ceylon and Indonesia. During over one hundred years of its existence the college had the proud privilege of having men of eminence as its Principals and professorial staff. Gen. R. Maclagan of Royal Engineers was its first Principal followed by

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twenty six others upto 1948.

After the close of World War II, a Reorganisation Committee was appointed in 1945 under the chairmanship of Prof. Ceil L. Fortescue, Head of the Electrical Engineering Department, Imperial College of Science and Technology, London "to examine the working of the Thomason College of Civil Engineering in all its aspects as to make recommendations with a view to reorganise it on a basis that will make it more useful to the province, more efficient and more uptodate" The main recommendations of the committee were—the college was renamed as "The Thomason College of Engineering" to make the name comprehensive to cover other types of engineering besides civil engineering; teaching in electrical and mechanical engineering was started and women students were allowed to join the college; following the recommendations of the committee, the college was raised to the status of a University in 1948. On November 25, 1949 The Premier of U.P. personally presented the charter of the University to its first Vice-Chancellor C.A. Hart. In 1960s the Central Govt. decided to open a few centres of excellence in engineering and technological education; it rightly turned to Roorkee model of engineering education and offered the most coveted IIT status to the University. Pt. Govind Ballabh Pant the then Chief Minister of the State declined to accept the Central Govt. offer on the ground that Roorkee was "Jewel in the crown of Uttar Pradesh". Perhaps he desired to develope Roorkee at par with any other best university of engineering and technology in the world.

With the passage of several decades of its glorious past, Roorkee marches ahead from strength to strength. Its dynamism is its greatest strength. It quickly absorbs all that is new in engineering and technology. Its dynamism is reflected in the changes in its nomenclature. It is no longer the Roorkee College, the Thomason College of Civil Engineering, but a University where teaching and research is provided in all branches of engineering and technology. It is ahead of all engineering and technological universities and institutes in the country in several ways. If one compares the number of departments and research centres at Roorkee and other elite institutions, one can conveniently place Roorkee at a higher pedestal of glory. Roorkee University has 16 teaching departments and 10 research centres. Under the UGC Research Support Scheme, Roorkee has eight departments under COSIST, five under SAP and four under Departmental Research Support. Roorkee has the highest intake at the undergraduate (UG) level, next only to IIT Kharagpur and better postgraduate (PG) intake than any IIT and IISc, Bangalore. It has 10 UG courses and 59 PG courses (including M.Sc., M.Tech., M.E., M.Phil and P.G. Diploma). The number of PG courses are the highest amongst the IIT's and IISc, Bangalore.

Roorkee has introduced a special programme of imparting continuing refresher courses of general and advanced nature to inservice engineers/scientists. This scheme has now found a proud place in the New Education Policy (NEP) of the country. Roorkee model of 4 year undergraduate course in engineering and technology has now been adopted by All India Council of Technical Education (AICTE) and made applicable to all the engineering institutions including IITs. Roorkee model of Entrance Examination—having a general objective type qualifying paper has also been adopted by IITs for their Joint Entrance Examination for undergraduate courses.

Besides UGC and the State Govt., Unesco has also provided funds for setting up a unique Centre in Water Resources Development and University Department of Hydrology. Both these centres have trained water engineers from Afro-Asian and Latin American countries. More than 1300 engineers have earned their Postgraduate degrees from these centres.

The School of Research and Training in Earthquake Engineering has provided expertise and consultancy services on earthquake resistant design of river valley projects, thermal and atomic power plants, oil refineries and large span bridges. It has also helped the country in seismological mapping of the Himalayan/Terai Belt.

The QIP centre is another department which is far ahead of IITs in training inservice engineers and teachers in the country. It is now acting as donor institution for improving the standard of technical education in other Universities.

The distinctive achievements of its faculty and of alumni have become an object of envy by other sister institutions in the country. More than half a dozen of its Professors have been decorated with Padam Vibhushan, Padam Bhushan and Padam Shri awards; every third Professor has been bestowed with fellowship of international institutions and societies. Its profusely decorated faculty is a source of strength and inspiration to all those who enter its portals on the 16th of July every year.

An institution of such a meritorious achievements, colourful past and excellence in every field of engineering and technology richly deserves to be designated as National University of Engineering. By granting such a coveted status to it, we will be fulfilling one hundred and forty year old dream of its founder James Thomason who conceived it as one of the leading educational institutions of the East with great traditions and a reputation second to none. □

TAPPING ENGINEERING TALENT

Padma Bhushan V. Krishnamurthy, Former Chairman, Steel Authority of India Limited, bemoaned our inability to tap our engineering talent. He said, "Partly due to lack of imaginative responses from industry, partly due to low levels of interaction between industry and academics and partly arising from student apathy and unrealistic expectations, we have not been able to tap fully the talents of our people." Mr. Krishnamurthy was delivering the Convocation Address at the Annual Convocation of the Institute of Technology of the Banaras Hindu University. "The awareness to correct this situation is now in evidence. The Government has recognised technology as a crucial resource and has taken several measures to inculcate a long term technological orientation into the economy. Through a series of Policy initiatives pressure is being brought about on industry to be competitive through technological excellence," he added. Excerpts

Convocation

The Current Scenario

As a country we are now talking about being competitive in the national and international markets.

Technology is increasingly being seen as the most important resource for the nation. We are beginning to realise that the key to competitive success of countries like Japan, Korea and Taiwan has been not so much in the capital or hardware equipment that they owned but more in the technology and skills that they possessed. These countries have shown that technology or applied research is the greatest of their assets.

The Indian Context

In the last forty years, India's planners and policy makers chose a strategy of planned development through industrialisation and upgradation of technology. A commitment to continuous development was embodied in the Scientific Policy Resolution of 1958. This Policy clearly brought out that only through the scientific approach and use of scientific knowledge can the material and cultural amenities be reasonably provided for the members of the community. In the initial five year plans, a lot of attention was given to acquiring the right technology through foreign collaborations. Heavy industry and infrastructure occupied the pride of place for building a sound foundation for the economy. These were extremely good decisions and helped keep the long term viability of the Indian economy in focus.

The first step towards building a strong engineering base in the country was the creation of the institutional and infrastructural framework. Five premier national institutions of technology were established between 1951 and 1960. The Institute of Technology of BHU occupied an important place. Besides these, more than 900 other engineering colleges and 500 polytechnics have been set up as against only 38 and 53 respectively, which existed in 1947. Over 150 institutions have since been created for providing postgraduate degree in Engineering. The annual admission in engineering colleges is around 60,000; the corresponding figure for polytechnics is about 90,000. Over 30,000 teachers are engaged in technical education today. As a result, India has built up the capability of training a very large number of scientific and technical manpower.

Industries in the core and infrastructural sectors were also established to give the necessary fillip to the economic development. Thus the stage was set for a rapid industrialisation and development of the country. These efforts were supplemented by the setting up of a large chain of research institutes and laboratories. Government policies were directed towards building a strong and self-reliant India.

Progress Made So Far

Over the years, India has achieved substantial progress on a variety of fronts. However, the achievements have not measured up to what the planners had envisaged, considering the resources which were available and deployed. Unfortunately, the technological gap between us and the advanced nations has widened further during the three decades. The technological growth in the West has been phenomenal and we have not been able to keep pace on many fronts. A stage has come for an all out effort to narrow the gap.

Diagnosis of the Situation

The Indian scene has been one of contradictions. On the one hand, we have made remarkable progress in some of the advanced areas of technology like Atomic Energy, Space, Satellite Communication and Oil Exploration. Indian Engineers are doing remarkably well in foreign countrie. Yet, on the domestic industrial front, our achievements have lagged behind. There are some areas of consumer goods where we have done well. But, in the case of most of the industries, we are below international standards in terms of the quality and reliability of our products. Productivity of our operations is very low. The comparative advantage expected in our costs of production did not materialise. Despite huge investments and technology imports, many of our industrial units have turned sick. We still have to depend upon imports to meet a substantial part of the demand for engineering goods in the country.

Even in the import of technology, our emphasis has been on a one-time purchase of product drawings and process sheets, rather than importing the entire concept. We have believed that by buying a set of drawings, we have bought technology.

Technology includes a host of activities right from the market research, understanding the customers' needs, his usage habits, the type of material that goes into it, the processes that are adopted in the manufacturing plant, the type of machines that we use during the processes, building reliability and quality into the product after market surveys. There are many activities involved in what we commonly term as the word Technology. But for too long in this country, we have been imagining that we have bought technology once we have bought a formula, or a set of drawings.

The main problem, however, seems to me to be in utilisation of the human resources—in motivating young engineers and scientists and directing them into correct pursuits. The engineering profession, itself, has remained at a low key. Young engineers coming out of the colleges do not perceive engineering as an attractive career. The proportion of entrepreneur-engineers is negligible. A majority finds it necessary to better their prospects by going abroad or pursuing management studies.

The Indian engineer was not perceived as a figure with sufficient status. This is exemplified by the fact that though there are well-known academicians, administrators, industrialists and even scientists, there are no household names of engineers in the Indian industry. It is not perceived by the industry as a prerequisite for the long term growth of business. Barring a few examples, the industry in general has not invested adequately in research and development efforts. As a result engineers in the industry do very little engineering.

Contrast this with the situation in Japan. According to a recent study of Japan "The engineer, not the financier or the professional manager has come to represent the spirit of enterprise in Japanese society. The engineering profession has high social status and attracts the best and most achievement-oriented young people. Doyens of the Japanese industry come mainly from the engineering function". The contribution from the engineers of India will have to be far greater. Partly due to lack of imaginative responses from industry, partly due to low levels of interaction between industry and academics and partly arising from student apathy and unrealistic expectations, we have not been able to tap fully the talents of our people.

Technology Management

There is a lot to be done. The malaise which afflicts the engineering industry and hence, the profession is systemic. The initial policy framework was there. Infrastructural facilities were created. The Government was committed to industrial progress. Industrial Policy provided for the growth of the enterprises both in public and private sector. What was lacking was a cogent strategy for the Management of Technology.

In the fifties most sectors of the industry started off with liberal doses of foreign technology. However, a serious concerted effort has not been made to assimilate and improve upon the technology. As a result, even today, Indian industry remains content with sporadic injections of foreign technology. Indigenous engineering development has remained confined to a few progressive companies. There is hardly any coordination or linkage between the engineering and development effort made by the industry, research institutions and academic institutions. In such an environment, no real need has been perceived for engineering skills.

Japan which has achieved great success in absorbing technology, has followed a well thought-out strategy for technology development. Japan's strategy included:

— Complete absorption of foreign technologies in specific high value added and export-oriented sectors like Automobiles and Consumer Electronics.

— Emphasis on borrowing of contemporary design and product technologies and improvement in material used, process technologies and quality control systems to attain lower costs and higher quality.

— After attaining technological superiority in these sectors, striving for innovation in emerging high-growth fields like Semi-conductors and Biotechnology.

Role of Government

This type of concerted effort has

been till recently lacking in our planning. The formulation of specific guidelines and instructions by the Government has often thrown up inconsistencies in approach and given the impression that decisions have been taken on short term considerations rather than in accordance with a long term strategic plan.

The awareness to correct this situation is now in evidence. The Government has recognised Technology as a crucial resource and has taken several measures to inculcate a long term technological orientation into the economy. Through a series of Policy initiatives pressure is being brought about on industry to be competitive through technological excellence.

Technology Forecasting

A Technical Information Forecasting and Assessment Council (TIFAC) was formed to create a sound basis for future technological growth in the country. A group of technocrats, scientists, research scholars and administrators was created to work together and play an advisory role to the Government on technology acquisition, research and development and industry modernisation.

TIFAC is envisaged to be a brains trust; a medium to enable government to take suitable policy decisions in the area of technology. The perspective being broad and of a long term nature, TIFAC is proposed to be a standing committee and it has, therefore, been registered as a society. The terms of reference of TIFAC include:

- examining and evaluating
  - existing technology, and
  - direction of future technological developments across various sectors.
- preparation of technology forecasting reports
- estimation of the nature and quantum of likely demands of goods and services
- suggestions regarding direction and extent of technological changes to meet the above.

Formation of this council has been an important development and TIFAC has the potential of being developed into an Indian version of Japan's MITI—the powerful Ministry for International Trade and Industry.

The Industry's Role

Industry itself is realising the unique strengths of Indian scientists and technologists to make best use of them. By and large, the approach in industry in the past suffered from the trading culture; the emphasis too often is on quick returns and not on long term growth. This is one reason for the poor investment in creating a scientific temper or an engineering culture. Growth opportunities for young graduates are perceived to be greater in functions like Marketing, Finance and other General Management areas. This is exemplified by the fact that there are fewer scientists and engineers, especially those who have come up through the engineering functions at board level of companies.

During my long association with BHEL, Maruti and SAIL we had taken several steps to strengthen the engineering capability in these organisations. Some of these efforts were very successful and may also be applicable to many other organisations. If you have found the BHEL a strong organisation or Maruti producing a product which you can be proud of, it is largely due to the thrust given to the "engineering" as a function.

Today the situation is fast improving. Thanks to the policy initiatives of the government. New policies are also throwing up new challenges.

New Challenges

The government has clearly defined its priorities. Emphasis on agro-industry and small scale sector would address the twin objectives of industrial growth and creation of employment opportunities. These are sectors of the economy which have traditionally seen very little of engineering and even less of management. It is in areas like these where fresh talent from engineering institutes can contribute effectively.

Contribution from Academic Institutions

Institutions like the BHU—IT have a primary role to play in this endeavour. They should be sensitive to the new developments taking place in the industry. When technological upgradation is taking place rapidly in the industry, the curricula should also respond to changing situations.

Much would, of course, depend on you the graduating students, and the role that you play in bridging these gaps.

Those of you who would be working in industry must keep in touch with the institute and relate your own experiences with the academic curricula you went through. This feedback is of great relevance.

I believe that there are excellent opportunities in India. India is one of the few countries where the development work will continue unabated; while other countries suffer from affluence and consequently they are curtailing their activities.

The Human Side of Technology

The human side is most important—even in technology oriented organisations. We must remember that behind all technological changes are a group of people who will determine their success or failure. Management of technology and of technological change is more a question of human psychology; less of technical jargon. The most sophisticated of technologies cannot work unless people are motivated enough to see it work. ☐

World Revolution and Indian Nationalist Movement

The Academic Staff College of the University of Calicut recently organised two refresher courses in History. The thrust areas of the courses were: (1) World Revolutions, and (2) History of Nationalist Movement in India.

Prof. B. Sheik Ali, the veteran historian and Vice-Chancellor of Goa University, who inaugurated the course on World Revolutions, commended the selection of the theme. In the course of his inaugural address, Prof. Sheik Ali observed that revolution was the passage of an idea from theory into practice. He added that the revolutions should have an ideological basis. Prof. Ali referred to the series of intellectual revolutions that had taken place in India from very early times. Most of them were in the religious fields. They were the result of sublimation of the intellectual activities of man. In recent years, this sublimation process had stopped. Unless and until we tried to revolutionise and use intellectual power, India cánnot progress, he said.

Prof. Sheik Ali also observed that man was the parameter of India's intellectual revolutions. Man was the standard. Even God was seen in the form of man. Hence human aspects were always considered to be important. This was not the case in many other countries. Because of this, revolutions did not cause great human sufferings in India unlike in the case of revolutions in Europe.

Dr. Ali further said that the French Revolution brought forward the ideas of liberty, equality and fraternity in Europe. The revolution washed off accumulated old habits and values. The revolution had its base in the intellectual fervour created by great thinkers like Voltaire and Rousseau.

Dr. T.K. Ravindran, Vice-Chancellor of the University of Calicut, who presided over the inaugural function, observed that the study of the role of the people in history was very important. He said that history should be viewed from below and not merely from the top. Dr. Ravindran said that ideas of revolution and democracy were contrary to each other. They cannot coexist. When revolution happened, democracy was pushed back. Without tyranny, revolutions cannot succeed. A revolution should also have an ideology behind it. In this sense, the American revolution was not a revolution; but only an uprising.

The History of the Nationalist Movement in India was taken up as the thrust area for the second refresher course because of its topical importance in the centenary year of Jawaharlal Nehru, one of the foremost nationalists of India. In addition to a critical study of the recorded history of the nationalist movement, thrust was given to regional movements also. The importance of the theme was appreciated by Dr. T.K. Ravindran, Vice-Chancellor, who inaugurated the course and Dr. K.N. Panikker, Chairman of the Centre for Historical Studies at the Jawaharlal Nehru University, New Delhi, who delivered the keynote address. Dr. Panikker, analysed the different historiographical approaches towards the study of Indian nationalism, like the economic, political, cultural, subaltern and regional interpretations. He added that these different interpretations helped us to understand the mainstream of the movement. However, any single approach failed to provide a complete picture of the struggle for freedom. Therefore, there should be new studies integrating the various approaches for an in-depth analysis of the nationalist movement.

Environmental Education Dept. for Bharathidasan Varsity

The University Grants Commission has accorded sanction for the Bharathidasan University to start a separate Department on Environmental Education from this academic year. Dr. Muthukumaran, vice-chancellor, made this announcement while delivering the inaugural address at the two-day workshop of environmental education for school teachers organised recently at the Holy Cross College (Autonomous), Tiruchi. He said that most of the industries had been started without plans to discharge the effluents coming out of them. He impressed upon the need to teach children about the ills of pollution and how human beings should live without disturbing the ecological balance.

Dr. B. Hango, Secretary, Tamil Nadu State Council for Science and Technology, Madras, said that environmental changes were causing more concern than ever before. The forests were vanishing rapidly, deserts continued to expand, soil erosion was reducing agricultural production as well as the livelihood of millions of people and extinction of plant and animal species diminishing the ecological balance, he said.

The atmosphere itself was undergoing perceptible changes for the worse. The ozone layer in the stratosphere that protects life on earth from the harmful ultraviolet radiation was being attacked continuously by industrial effluents. The green house gases were causing global warming. It was hightime before we took adequate steps to stop environmental deterioration before it became unmanageable

Dr. Ilango said that the global atmosphere could rise by 1.5 to 4.5 degree celsius between the years 2030 AD and 2050 AD following rise in the carbon dioxide concentration in the atmosphere due to burning of coal, oil and natural gas etc. Large scale clearing of tropical forest should also add to additional carbon dioxide to the atmosphere.

If the spurt in global temperature that began in 1970s continued, droughts, heat waves and other unusual weather may occur in the late 90s.

As ocean water got warmed up it would expand and parts of glacier and ice caps would melt. According to studies the sea level would rise by 50 to 100 cms by the year 2050 AD and by the end of next century the sea level might rise by two metres swallowing many sea coasts.

Dr. Ilango said that each year due to lack of care irreversible land degradation claimed an estimated 15 million acres of land all over the world. Besides another 50 million acres became so improverished annually that they were unprofitable for farm operations.

He said that according to an expedition of the internationally sponsored ocean drilling programme in 1987 the Ganges and Brahmaputra rivers transported three billion tonnes of sediments to the Bay of Bengal every year far more than any other river system in the world. Much of this sediment originated in the Himalayas where deforestation and cultivation of steep slopes in recent decades had added to erosion by natural geological activity, he said.

Rev. Sr. Elizabeth Rose, Principal, Holy Cross College, presided. Around 70 teachers participated in the workshop.

Physical Education & Sports Sciences in Higher Education

The Department of Physical Education of the Mahatma Gandhi University organised recently a five-day residential workshop for the teachers in Physical Education of the affiliated Colleges of the University. Inaugurating the workshop Dr M.C. Chacko, Registrar of the University, appreciated the role of affiliated colleges and the teachers in projecting the sports and games activities in the University. He stressed the role of physical education in the higher education system and requested the teachers to pay more attention for better participation of the students in physical education programmes at the college and University levels.

Padmashree Dr. P.M. Joseph in his keynote address described the role of physical education and sports sciences in higher education and explained the ways and means to improve the quality of physical education in our education system. He requested the teachers to prepare themselves fully to meet the demands of students in the present day educational curriculum.

During the course of the workshop classes were conducted on various subjects connected with physical education, sports sciences and other allied subjects. Group discussions were also held on various topics connected with the subject.

Prof. U.R. Ananathamurthy, Vice-Chancellor of the University, who was the chief guest at the valedictory session, pointed out the philosophy of physical education in higher education and requested all concerned to implement the physical fitness programme in an effective manner. He urged the teachers to suggest ways to give weightage for those who participated in the physical fitness programme.

Refresher Course in Physics

The first refresher course in Physics for university and college teachers was recently organised jointly by the Academic Staff College and School of Physics of Devi Ahilya Vishwavidyalaya (DAVV). The inaugural session was presided over by DAVV Vice-Chancellor Prof. M.S. Sodha and conducted by Dr. K.P. Joshi, Head of the School of Physics.

In his inaugural lecture, Dr. D.D. Bhavalkar, Director, Centre for Advanced Technology, narrated the latest developments in the field of optics with special relavance to lasers. He discussed the principles and applications of lasers. He gave several examples of applications of lasers in various fields ranging from basic physics to biotechnology, medical science, forensic science etc. He also demonstrated some experiments using lasers.

Prof. Sodha, in his presidential address, emphasised the importance of such refresher courses and urged the teachers to be actively involved in their further education and research for their professional and carrer development.

The course contents consisted of (i) creating awareness about latest developments in physics, (ii) discussion on various research problems, and (iii) topics to be used in undergraduate and postgraduate teaching. Instead of the usual classroom lectures the emphasis was laid on problem solving and discussions on principles of physics.

24 participants from 16 colleges eight universities and five states participated in the course.

World Environment Day at BHU

On the occasion of the World Environment Day, Prof. J.S. Singh of the Centre of Advance Studies in Botany, BHU delivered a special lecture on 'World Environment: A Global Problem', to the participants of the Ninth Orientation Course of the Academic Staff College of the Banaras Hindu University. Prof. Singh in his scholarly exposition outlined an increasing danger on biosphere by linear increase of methane during the last 15 years, increasing level of nitrous oxide, rising concentration of Co_2 and rapid depletion of ozone layers on surface of the earth.

Prof. Singh pointed out that increasing level of nitrous oxide and carbon-dioxide (Co_2) will result in bigger plants than their present day average height, weeds will be bigger, soil will be impoverished and therefore more fertilizers will be needed and ultimately marginal farmers will be the victims. This will happen because of increased level of Co_2, average temperature of earth surface will increase which will further result in elimination of vital vegetation from upper strata of mountains and completely changed vegetation at lower level, and thereby overall change in whole eco-system of mountains. This will create havoc in increased epidemic and change in sea level resulting in submerging in seawater of many parts of the Globe, which is expected around 2030-2040 unless checked.

Discussing depletion of Ozone layer on earth's surface, he observed that it could absorb Ultraviolet rays coming through Sunrays which could harm human species in many ways including danger of skin cancer, lower level of self immunity, lower average of crops, less forest, destruction of ocean eco-system including species, elimination of marginal farmers and higher sea level.

He called for immediate possible solutions and more active research in the area. He said that immediate solution was afforestation of 7 million square km. of earth's surface to absorb the present range of Green House gases.

Seminar on Futurology

A seminar on Futurology was recently held at Avinashilingam Institute for Home Science and Higher Education (Deemed University) for Women, Coimbatore for the Professors of Home Science, Sciences and Humanities at various arts and technical colleges. Dr. (Mrs.) Rajammal P.Devadoss, Vice-Chancellor, who inaugurated the seminar and delivered the keynote address, pointed out various problems facing the present population such as malnutrition, terrorism, communalism, degradation of the environment and pollution. She said that protecting the physical and mental development of children was the most important of all investments in the social and economic development of our societies. In future, the economic development alone would not be enough. Human development should supplement economic development. It was the function of futurology to help us plan our disciplines to solve future challenges, she said.

Dr. H.G.S. Arulendran, Director, Curriculum Development Cell, Bharathidasan University, who was a special invitee, said that futurology was interdisciplinary body of knowledge that could get into any discipline. He suggested several techniques to introduce futurology in various levels of education.

Dr. R.S. Nagarajan, Department of Production Engineering, Faculty & Engineering, Annamalai University, discussed the objectives of Futurology and the difficulties faced in introducing it in various courses.

The Chancellor Dr. T.S. Avinashilingam in his valedictory address emphasised that all futurologists should dream for future and plan actions to realise the dreams. Every individual has great potentials to do great work, he said.

The seminar recommended that:

(1) Futurology concepts should be integrated into the syllabi of all other subjects.

(2) Universities should revise curriculum on the basis of the interaction with the industries. University-Industry collaboration wing will facilitate this. Industries should give syllabus and ask the educational institutions to educate pupils on them.

(3) Futurology should be brought to the grassroot level.

(4) Universities should involve the community in its functioning and growth. Home Science is for community and women should take decisions on their own.

(5) Jobs should be created for Job-oriented courses.

World Environment Day

The World Environment Day was celebrated at the Tamil Nadu Agricultural University (TNAU), Coimbatore on 5th June, 1990. Dr. S. Sankaran, Director, Soil and Crop Management Studies in his welcome address cautioned on the warmer days if the ecosystem was not kept in balance. Dr. S.R. Sree Rangaswamy, Director, School of Genetics in his special address emphasised the need for augmenting tree related activities and the relationship between energy and food cycles.

Dr. S. Kedharnath, Retd. Director, Kerala Forest Research Institute in his keynote address stressed that economic development and eco development were not contradictory. In his opinion, ecological systems were fragile and highly unstable. Environmental modifications beyond rather narrow limits could destroy natural stability which resulted from a diversity achieved through ages of natural evolution. Dr. Kedharnath said that the realisation was dawning that consequences of pollution and its impact on global warming, sea level rise, etc. could be pretty serious.

The importance of careful planning in the use of the precious soil and water resources, should not be lost sight of, so that they not only give maximum returns to the present generation but are preserved as vital resources for the generations to care.

Dr. S. Jayaraj, Vice-Chancellor, TNAU in his presidential address outlined the need for inculcating the environmental awareness in children and public through planned educational system. He stressed various approaches for developing strategies to counteract environmental degradation.

INSA Medal for Young Scientists

The Indian National Science Academy has invited nominations for the award of INSA Medal for Young Scientists – 1991. Nominations may be made by Fellows of the Academy, established scientific societies of all India character, university faculties and departments, or the research institutions. Nominations received in previous year(s) will not be carried forward.

Instituted by the Indian National Science Academy in 1974, the Medal is awarded annually in recognition of outstanding work of scientists below the age of 32 (as reckoned on 31 December preceding the year of award). Only those born on or after January 1, 1959 are eligible for consideration in 1991. The work done in India by the nominee will be taken into consideration for the award.

The awardee is presented a Medal and a Cash Award of Rs. 10000/-. In addition, the recipient is considered for a research grant by the Academy not exceeding Rs. 30000/- per year, including stipend for JRF for a period of three years for continuing research work provided the research proposal is considered worthy of such support. Preferential consideration may be given under partial travel grant scheme for attending international conferences.

The last date for the receipt of nominations in the Academy is November 15, 1990.

Further details and nomination proforma may be obtained from the Indian National Science Academy, Bahadur Shah Zafar Marg, New Delhi-110002 by sending a self-addressed envelope of 28 × 12 cm size.

Futurology: Towards 21st Century

A seminar on "Futurology: Towards 21st century" was recently held at the South Gujarat University, Surat. Sponsored by the Department of Science and Technology, Govt. of India, the seminar was inaugurated by Prof. A.R. Desai, ex-Vice-Chancellor of the University. Dr. B.I. Sheth, Professor and Head of the Department of Physics acted as the coordinator of the seminar.

Dr. S.C. Seth, Director, Futurology Unit, Department of Science and Technology, Dr. H.I. Lokhande, Professor, UDCT, Bombay University and Prof. M.S. Trivedi, the Vice-Chancellor of South Gujarat University, gave lucid and detailed exposition of the subject of futurology and discussed technology assessment and methods of forecasting.

The other topics discussed at the seminar included high temperature superconductivity and its application; operation flood in 2000 AD; possibilities of space travel and space colonization in 21st century; methods of technology forecasting; and methods of forecasting with reference to social and economic forecasting.

The seminar recommended that the South Gujarat University be requested to introduce M.Phil. and M.Tech. courses in futurology and more lectures, summer schools and workshops be held on the subject of futurology.

South Gujarat University is one of the first ten universities in India to give a meaningful place to the subject of futurology in its restructured three year degree programme undertaken in 1979.

News from Agril. Varsities

New Vistas in Bio-Technology

A Summer Institute on Biotechnology and Innovative Breeding for Crop Improvement was recently held at Tamilnadu Agricultural University (TNAU), Coimbatore. Inaugurating the summer institute, Dr. S. Jayaraj, Vice-Chancellor of TNAU emphasised the urgent need for taking up biotechnological manipulation in microbes, plants and animals which offer tremendous scope for increasing their productivity. He said, recent advances in molecular and cellular biology have made possible the production of genetically transformed viruses, micro-organisms, plants, animals for use in agriculture, industry, health care and other fields.

Now each developing country is attracted towards the applications of biotechnology and other innovative techniques. The challenge to us was to bring about continuous improvement in the productivity of major farming systems, Dr. Jayaraj added. In this context a thorough understanding of biotechnological applications and implications was necessary. For this, he said, facilities for training and the selection of suitable centres for offering long term and short term manpower training, workshop etc. played a pivotal role. He revealed that the

Department of Biotechnology, Indian Council of Agricultural Research and University Grants Commission were offering such programmes through the selected State agricultural universities and TNAU was one among them.

Dr. Jayaraj outlined the strategy to be adopted in agricultural research as: (1) Undertaking research in frontier areas such as biotechnology, molecular biology, energy and remote sensing; (2) Remedying the imbalances in progress among the regions and commodities; (3) Conservation of environmental assets, improvement in productivity and linking it with profitability; (4) Strengthening inter-institutional and inter-disciplinary linkages including international collaboration; and (5) Human resources development; research and training needs of economically handicapped sections of the community, equity consideration and research on delivery systems.

Commending the "Assam Rice Collection for resistance breeding", the Vice-Chancellor called upon the scientists to make expeditions to expand the genepools in major crops. "Self Employment for farm graduates through biotechnology is a good proposition" he said and hoped that Hybrid Seed Production will promote lot of employment in villages.

Dr. S. Chellaiah, Director of Research, Dr. Narayanasamy, Professor (Pathology) and Dr. Karivaradaraju, Professor and Head, Department of Seed Technology spoke about different dimensions of biotechnology.

The participants from 13 agricultural universities and four ICAR institutions attended the summer institute at which they were exposed to various aspects of biotechnology and innovative technology for Crop Improvement.

Vegetable Improvement Workshop

The ICAR sponsored XIth All India Coordinated Vegetable Improvement Workshop was recently held at the Dr. Y.S. Parmar University of Horticulture & Forestry, Nauni, Solan (HP). Mr. B. Rachaiah, Governor of Himachal Pradesh, inaugurated the workshop in which about 300 Vegetable Scientists participated.

In his address Mr. Rachaiah, called upon scientists to evolve suitable technologies for minimising the losses caused by the diseases such as buckeye rot to tomato, angular leaf spot of french beans and bacterial blight of peas. He said that Agricultural and Horticultural Universities had to play a significant role in accelerating vegetable production in the state by supplying quality breeders/foundation seed of commonly cultivated varieties. Breeding of superior disease resistant types and developing seed production technology of temperate vegetables were very much needed for the production of high value exotic vegetables to ensure high returns to the farmers and to meet the demand of consumers in metropolitan cities.

Dr. M.R. Thakur, Vice-Chancellor of the University, said that the vegetable production in the country had now attracted the attention of policy makers and production, research and developmental programmes so formulated found due place in the policy document. To bridge the seasonal gap between demand and supply, more emphasis had been laid on cultivation in hilly areas, he added. Dr. Thakur said that his university had already initiated the technologies for the production of breeders' foundation seed as well as highly remunerative varieties of vegetables. He said that university was seeking the support of NBPGR in procuring superior exotic germ plasm.

During the workshop need for effective production of nucleus/basic seed was realised and need for buffer stocking of breeder seed was emphasised. It was also felt that necessary modalities at national level should be worked out and implemented.

New Crop Varieties

The Variety Evaluation Committee of Haryana Agricultural University has identified 6 newly developed varieties of various crops. These include HKR-126 and HKR-228 of paddy, COH-35, COH-56 and COH-77 of Sugarcane and HS-6 of cotton. These varieties have better yield potential, more resistance to diseases and pests and better adaptability than the earlier evolved varieties.

The Senji variety HFWS-55 recommended for release gives 30-40 per cent higher green fodder yield than the earlier variety FOS-1 and remains green for longer period than this variety.

A unbranched variety of guar HG-314 gives 10-12 per cent higher seed yield than the earlier variety FS-277 and is moderately resistant to bacterial blight disease. Being unbranched it is most suitable for intercropping with bajra.

Oilseeds Technology Mission Sub Committee Meets at TNAU

The "Technology Mission on Oilseeds Production" is intended to impart mission approach and urgency to the important task of bridging the gap between demand and supply of edible and non-edible oils, which also recognizes the important role of technology in oilseed production and processing through coordinated and integrated action, with efficient delivery of such technology to all participants particularly farmers and processors.

The mission envisages development of location-specific technologies for maximising production, production of adequate quantities of seeds, mass multiplication of tissue cultured plants, creation of an awareness about the improved and emerging technologies and development of workers in training and imparting technologies of science and modernization of the processing technology to increase the output and improve the safety and quality of oil.

The Oilseeds Technology Mission Sub-Committee meeting on Crop Production Technology was recently held at Coimbatore under the Chairmanship of Dr. S. Jayaraj, Vice-Chancellor of Tamil Nadu Agricultural University. Shri Lal Rawna Sailo, the Director of Oilseeds and Smt. S. Malathi, Director of Agriculture and the scientists members of TNAU participated and deliberated on the various dimensions of oilseeds in Tamil Nadu.

The team suggested proper nutrient management techniques for groundnut to arrest the deterioration of oil recovery from generation to generation. Realising the need for efficient farm machines and implements for enhancing oilseed management, and thereby the production, it was decided to multiply the fabricated improved farm machineries and implements. The seed production in oilseeds would be enhanced.

Large scale efforts on the use of biofertilizer and on-farm trials on V.A. Mycorrhizal on groundnut would be taken up. The research projects on assessing the performance of non-traditional oilseed tree crops like pungam, neem, eluppai etc. are taken up at TNAU as envisaged.

Lab to Land Programme

"Adopted families under lab to land programme should serve as model/demonstration unit for others so that the people could get the benefit of latest technical know-how", said Dr. M.R. Thakur, Vice-Chancellor, Dr. Y.S. Parmar University of Horticulture and Forestry, while inaugurating the Ist Workshop of Lab to Land Programme at the University Campus, Nauni on June 12, 1990. He added that for the successful implementation and result oriented feedback, duration should be raised from 2 to 3 years and number of families should also be increased. He called upon the scientists to depict the gap in traditional farming and modern scientific farming in practical terms to the farmers in their own language so that they could go for modern technology.

Speaking on the occasion Dr. P.K. Khosla, Director of Extension Education said that lab to land programme could increase the economic status of the people and was also helpful for maintaining balance between economy and the ecology. Dr. Khosla asked for more financial assistance under lab to land programme keeping in view the difficult terrain of the state.

Dr. Subhash Chander, Zonal Coordinator, ICAR, presented the project report and informed that in Himachal Pradesh Lab to Land Programme could be most successful because of 42% literacy rate and this state was Ist State among J & K, Punjab, Haryana having lowest 13.5% people below poverty line. It was because of this that people could adopt the technology easily. He asked the team leaders to provide literature related to farming to the farmers to add to their knowledge. Dr. Subhash Chander informed that presently one Krishi Vigyan Kendra had been sanctioned under this University but for successful implementation of Lab to Land Programme at least one Krishi Vigyan Kendra was needed in each district of the State.

20 team leaders and resource personnel participated in the workshop. The aim of the workshop was to review the work done in the past and to chalk out the future strategies for the successful implementation of Lab to Land Programme.

Syrian Delegation Visits HAU

A 3-member Syrian delegation headed by Dr. Hassan Ali Mohamad, Director of Agricultural & Scientific Research, Govt. of Syria, visited Haryana Agricultural University recently. In a meeting with the Director of Research and other senior scientists of the University, Dr. Mohamad said, "in view of the similarities at the agricultural front between India and Syria, the agriculture and allied section of both the countries can further be improved by mutual scientific exchange programme".

Dr. Mohamad said that wheat, barley, maize, legume and grapes were cultivated in their country at a large scale. In the meeting Dr. S.P.S. Karwasra, Director of Research, explained to the members of the visiting delegation the research programmes that have been taken up at the University for the improvement of these crops. Lauding the seed production programme of the university, Dr. Mohamad said that he would send the Syrian scientists at this section soon for getting training in seed production.

The delegation visited the Horticulture research area, National Seed Production section and crop museum of the College of Agriculture and studied the new thrust areas of the research in these disciplines.

The other members of the delegation were Dr. Mohammad Refat Laham, Director, Plant Protection and Dr. Kheder Foani, Director, Agriculture Affairs of the Govt. of Syria. This delegation visited the university under Biennial workplan between India and Syria. The delegation will also visit other agriculture centres of the country and will finalise the first biennial workplan in implementation of the programme of cooperation in agriculture and allied sectors signed between India and Syria in June 1989.

News from UGC

INSAT-1B Programme of UGC

Between 2nd July to 7th July, 1990 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 Noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission
6.00 a.m. to 7.00 a.m.

2.7.90

"A Voyage into Matter"

"Management Functions and Behaviour—Selection for Employment"

"Harvesting the Sea"

3.7.90

"Chemical Kinetics-I"

"Rhythm Puppet Making"

"The Human Brain-I"

4.7.90

No Telecast

5.7.90

"One World One Language-II: Talk to one World"

"Folklore"

"Appreciation of Literary Forms II: The Novel"

6.7.90

"Talk on Fascination & Use of Outer Space"

"Defence Mechanism-IX"

"Forests in Peril-I"

7.7.90

"Portraits of a City-I"

"Career Guidance—Print Journalisms—I"

"Zibo Ceramic Ware"

2nd Transmission
12.00 noon to 1.00 p.m.

2.7.90

"Colour-I Perception"

"Management 1: What is Management?"

"Agriculture and Biotechnology-I"

3.7.90

"Preparing a Standard Solution"

"Study Skills"

"Intraocular Lens Implantation"

4.7.90

No Telecast

5.7.90

"Electrical Circuits-IV"

"Mapping the Ocean Floor"

"Paninian Linguistics-III"

6.7.90

"Frontiers of Particle Physics"

"A Call to the Consumer"

"This Planet Earth – II: Water"

7.7.90

"Jean Rouch – A Retrospective-I"

"Dance Depicts Life"

"How Play is Staged?"

News from Abroad

Fellowships for US Foreign Policy Studies

• The Social Science Research Council, New York has invited applications for the award of Fellowships in Foreign Policy Studies. The purpose of the Program in Foreign Policy Studies is to encourage research on U.S. foreign policy-making processes that takes account of the complex interplay of political, economic, social, and international forces that are believed to influence policy making. In particular, the Program encourages applications dealing with the role of the media in the making of U.S. foreign policy, Congress and U.S. foreign policy, and comparative foreign policy. In addition to postdoctoral research fellowships, this is accomplished through a series of workshops that bring together the program's fellows, scholars, and foreign policy practitioners. Awards are decided and activities are sponsored by a Council-appointed interdisciplinary and International Committee on Foreign Policy Studies, chaired by Professor Miles Kahler of the University of California, San Diego.

These fellowships support one to two years of research. Awards include a stipend as well as limited funds to cover research expenses. The size of the stipend depends on the fellow's current salary or level of experience, but the total award is expected to average $35,000 per year. Mid-term and final reports on progress and results of the fellowship are expected. Completed applications (including letters of reference and language competency forms) must be received at the Council by **December 1, 1990** and awards will be announced in April 1991. For more information and application materials, contact the Program in Foreign Policy Studies, Social Science Research Council, 605 Third Avenue, New York, N.Y., 10158 U.S.A. (tel. 212-661-0280).

Australia Prize in Sciences

An Australian scientist is one of three men to share the inaugural Australia Prize, awarded for outstanding achievement in the field of biological sciences. He is Professor Allen Kerr, of Adelaide's Waite Institute for Agricultural Research. Those sharing the award with him are Professor Jeff Schell, of the Max Planck Institute in Cologne, and Professor Eugene Nester, of the University of Washington.

Announcing the prize, valued at $250, 000, the Australian Prime Minister, Mr. Bob Hawke, said: "The three scientists and their research teams have made breakthroughs which will radically alter our approach to agriculture in the 21st century. Providing a biological alternative to the use of chemicals against disease and for pest control will ensure a safer and cleaner planet."

Mr. Hawke said the Australia Prize, a new international award for outstanding achievement in promoting human welfare in the field of biological sciences relating to agriculture or the environment, was part of the government's commitment to science and technology in Australia. "The funding of scientific research is an investment that will repay itself many times over through the benefits to humanity and through boosting our national scientific and technological capacity," Mr. Hawke said.

The three scientists have led research teams which, during the past 20 years, have provided crucial insights into the biological and genetic systems of the crown gall bacterium, *Agrobacterium tumefaciens*. According to natural genetic engineer, the bacterium can transfer DNA from bacterial cell to plant cell. The studies have led to the construction of genetically engineered plants that are resistant to herbicides, to insect pests and to viruses.

In 1973, Professor Kerr's team released Strain 84 in Australia as a biological control agent for crown gall disease. Highly effective, it was adopted in Europe, Africa, North and South America. Further experimentation led to the development of a modified strain, K1026, now freely used in Australia as a pesticide under the trade name, No Gall.

Learning Without Frontiers

A university to create *kokusaijin* or "international people" has been established in Takahashi city in central Japan. Founded by Tsutomu Kakei, who was responsible for the establishment of the Okayama University of Science, the Kibi International University is higher education's latest contribution to Japan's internationalization process.

According to Mr. Kakei, the new university will offer a four-year course of interdisciplinary studies in international relations. trade, communications and several foreign languages including English. The university will also offer students the opportunity to travel and study abroad.

Several of Kibi's faculty members will be drawn from areas outside academia. Classes in "international understanding" and "international attitudes", for example, will be taught by Hisao Yasunobe, a retired journalist.

Other universities have also started to offer international studies to cash in on what has become one of Japan's most popular intellectual fashions.

Books Received

Higher Education in the United Kingdom 1990-91: A Handbook for Students and Their Advisers, Essex, Longman 1989, 312 p. £14.25.

Now in its 23rd completely revised and updated edition, this well established reference guide to higher education in the United Kingdom has been compiled by the Association of Commonwealth Universities (ACU). It purports to be an authoritative and comprehensive directory of full time courses in British institutions of higher education. The bulk of the publication comprises a directory of subjects of studies that lists more than 150 subject areas arranged alphabetically. Under each subject heading is a list of courses available and where they are offered—either at British universities, polytechnics or colleges of higher education. Each lists full time courses at the levels of Higher National Diploma (HND), Ist degree, and postgraduate degree. Details are also provided about the research facilities available and the professional qualifications offered. Information is also provided about the professional bodies and their role in the maintenance of standards in professional education.

There is a comprehensive chapter on the higher education scene in United Kingdom that treats amongst other things of accreditation, the academic year, the courses available, occasional students, vocational courses and continuing education. A separate chapter is devoted to admission of students from abroad that offers information on admission requirements, admission procedures, entry to the United Kingdom and a broad idea about money matters like tuition fees and other expenses and scholarships available. Not only that there is also a chapter on student life in Britain with details of the types of accommodation available, health services, counselling and recreation. The book also includes a detailed bibliography on sources of information and advice on matters relating to study in United Kingdom. Another important feature of the book is a wide range directory of useful addresses for contacting the universities or polytechnics or colleges, professional bodies or British Council offices overseas. The verso of the flypage has a locational map of the various institutions details about which are to be found in the text.

Awards for Commonwealth University Academic Staff 1990-92. London, The Association of Commonwealth Universities, 1990, 233p. £14.75.

Now in its 9th edition, this highly informative Handbook provides detailed information of Fellowships, Visiting professorships, Grants etc. open to university academic staff in a Commonwealth country who wish to carry out research, make study visits or teach for a while at a university in another Commonwealth country. All kinds of awarding bodies or agencies are included in the Handbook—universities, inter-university bodies, governments, inter-governmental organisations, professional association, learned societies, research councils and charitable foundations. Important new fellowships for international candidature included in this edition are offered by the Association of Commonwealth Universities, the Commonwealth Science Council, Natural Sciences and Engineering Research Council of Canada, the Royal Society and the Third World Academy of Science. Information has been arranged in sections according to country or countries of tenure. The first—'International' Section contains awards tenable in more than 2 countries. This is followed by 13 'national' sections for various countries in alphabetical order. Within each country section entries are arranged alphabetically by the title of administering agency within four subject categories: Unrestricted, Humanities and Social Sciences, Sciences, and Medical Sciences. Unrestricted means that the award may be held in any field in which university facilities are available. Cross references have been provided for awards falling under more than one of these headings. Each entry lists the following information:

Name of the Administering Agency, name of Award, subject, eligibility criteria, value, tenable at which institution(s), number of awards available, method of application, address from where further details may be obtained, and the closing date.

Index to awards and index to subjects are also included to facilitate reference.

Financial Aid for First Degree Study at Commonwealth Universities, 1990-92. London, The Association of Commonwealth Universities, 1989. vi+50p. £4.50.

One of the four guides that comprise the ACU Awards Series for students and staff, this booklet gives detailed information about scholarships, bursaries, grants, loans etc. for Commonwealth students who wish to study for a first degree at a Commonwealth university outside their own country. The information has been arranged in five sections dealing with multi-national award schemes, awards for study abroad offered by government and other sources in student's own country, awards for students from abroad offered by sources in country of tenure, awards for refugee students and students loan schemes. Within the various sections, awarding organisations are set out in alphabetical order. Each entry lists the following information:

Name of the awarding organisation, name of award, subject, eligibility criteria, value, tenable at which institution(s), number of award available, method of application, address from where further details may be obtained, and the closing date.

An index containing (a) the name of the organisations or authorities administering or providing the information about the awards and loans, and (b) awards with personal names has been provided to facilitate reference.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

Additions to AIU Library

Adiseshiah, Malcolm S. *Indian education in 2001.* New Delhi, NCERT, 1975. 22p.

Aggarwal, J.C. *Adult and social education in India: Global perspective,* Delhi, Doaba House, 1989, viii, 196p.

Bharati, H.L.N. *Introduction to Indian textual criticism and modern book publishing.* Mysore, Central Institute of Indian Language, 1988. xxvi, 263p.

Bhende, Asha A. and others, ed. *Teaching and research in population studies: 25 years of IIPS silver jubilee 1956-81.* Bombay, International Institute for Population Studies, 1981. 531p.

Chadha, N.K. and sen, Arun K., ed. *Perspectives in psycho-educational research.* New Delhi, Atlantic Publishers & Dist. (c 1989). vii, 260p.

Coombe, Carol. *International development programmes in higher education.* London, Commonwealth Secretariat, 1989. ix, 128p.

Hargreaves, Jennifer, ed. *Sport, culture and ideology.* London, Routledge & Kegan Paul, 1982. viii. 254p.

Inamdar, N.B. and Ramaiah, L.S. ed. *National policy for university libraries in India: Problems and perspectives.* New Delhi, Concept, 1989. xxiii 359p.

Joshi, P.C. *Culture, communication and social change.* New Delhi, Vikas, (c 1989). xxv, 300p.

Khan, Inayat, ed. *Teaching at a distance: Some papers on distance education.* Delhi, Amar Prakashan, 1989. xi, 167p.

Kogan, Maurice, ed. *Evaluating higher education.* London, Jessica Kingsley, (c 1989). 219p.

Kothari, Rajni. *Politics and the people: In search of a humane India, 2v.* Delhi, Ajanta Publications, 1989.

McConnell, T.R. *Redistribution of power in higher education.* Berkeley, University of California, 1971. 67p.

Mohammad Aslam. *Trends in English language teaching in India.* Bareilly, Prakash Book Depot, 1989. 150p.

Pathak, Aditi. *Caste-status and socialization among the students* New Delhi, Commonwealth, 1989. 125p.

Qureshi, Ishrat Ali. *Aligarh movement.* Aligarh, Aligarh Muslim University, 1980. xx 44p.

Rajasekhariah, A.M. *B.R. Ambedkar: The quest for social justice.* New Delhi, Uppal, 1989. 290p.

Ramachandran, Nair, K.R. *Themes in contemporary Indian education.* Bombay, Himalaya, 1989. 151p.

Ranjana Kumari and Radhakrishnan, S. *Higher education and scheduled tribe youth: A case study of Chattisgarh.* New Delhi, Radiant, 1989. viii, 101p.

Rao, R.B. *Educational environment in India: A multidimensional study.* Allahabad, Chugh, 1989. xiv, 295p.

Sachidananda and Sinha, Ramesh P. *Education and the disadvantaged: A study of scheduled castes and scheduled tribes.* New

Delhi, Uppal Publishing House, 1989. xviii, 309p.

Sampooran Singh. *Holistic education*. New Delhi, Siddarth publications, 1987. xvi, 390p.

Sarvepalli Gopal. *Radhakrishnan: A biography*. Delhi, Oxford Universtiy Press, 1989. 408p.

Sharma, S.D. *Semantics and syntax: Indian loan words in English: A linguistic, cultural, literary and historical study*. Bareilly, Prakash Book Depot, n.d. xi, 241p.

Singhvi, N.M., ed. *Toward excellence*. Jaipur, RBSA Publishers, 1988. xix, 144p.

Srivastava, Anand P. *Teaching and learning in XXI century*. New Delhi, Learning Laboratory, 1987. 198p.

Talesra, Hemlata. *Higher education among women*. New Delhi, National, 1989. x, 170p.

Townend, M. Stewart. *Mathematics in sport*. Chichester, Ellis Horwood, (c 1984). 202p.

Upasani, N.K. ed. *Evaluation in higher education: Theory and practice*. Bombay, Examination Reforms Unit, SNDT Women's University, 1978. 210p.

Wagholikar, G.A. *Book of Careers*. Delhi, Doaba House, 1987. viii, 496p.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities.

HUMANITIES

Philosophy

1. Sharan, Bina. *Dharam kee bhasha mein nihit samsyayen: Ek sameekshatmak vishleshan*. Magadh.

2. Tanikachalam, Rani. *Dev dharma and early Buddhism: A study in comparison*. Bangalore. Dr. K.J. Eswaraiah, Department of Philosophy, Jnana Bharathi Campus, Bangalore University, Bangalore.

Religion

1. Sinha, Arun Kumar, *Origin and development of Buddhist images upto the Gupta period*. Delhi.

Languages & Literature

English

1. Edward, Vasantha. *A communicative approach to the teaching of English for students of humanities*. Bangalore. Dr. M.A. Yadugiri, Department of English, Jnana Bharathi Campus, Bangalore University, Bangalore.

2. Kesava Rao, D.S. *Quest motif in the novels of Evelyn Waugh: A study. Venkateswara. Dr. P. Ramchandraiah, Reader, Department of English, Sri Venkateswara University College, Tirupati.*

3. Padmanabhan Nayar, K.N. *Irony as a fictional mode in the novels of R.K. Narayan and V.S. Naipaul: A study in contrast*. Calicut. Dr. N. Ramachandran Nair, Department of English, University of Calicut, Calicut.

4. Patil, Ujwala. *The travelogue in Indian writing in English: A study*. Gulbarga. Dr. G.S. Balarama Gupta, Prof. and Chairman, Department of English, Gulbarga University, Gulbarga.

5. Purohit, Andlya Kishore. *Nymphs and satyrs: The theme of infidelity in the novels of John Updike*. Berhampur. Prof. S.K. Mishra, Prof. and Head, Department of English, Berhampur University, Berhampur.

6. Rai, R.N. *The theory of drama: A comparative study of Aristotle and Bharata*. Magadh.

7. Sen, Pratati. *Hardy and pessimism*. Rabindra Bharati.

8. Thangaraj, Samuel. *The absurd elements in the growth of American drama with special reference to Edward Albee*. Madurai.

9. Wadhawan, Inderjit Rai. *The conflict between nature and culture in the novels of D.H. Lawrence*. Nanak Dev. Dr. Ramesh K. Srivastava, Prof., Department of English, Guru Nanak Dev University, Amritsar.

German

1. Bhattacharya, Pratibha. *Myth and reality: In German and Marathi folk literature*. Delhi

Sanskrit

1. Deshpande, Vijaya S. *Ramayana va Mahabharatateel Arya jeevan*. Nagpur. Dr. Bha Varnekar, Head, Department of Sanskrit, Nagpur University, Nagpur.

2. Joshi, Kiran Bala. *Shrimad Bhagvaton par vyanana madhyatik madhyayanam*. Kumaun. Dr. V.D. Pandey.

3. Khulbe, Geeta. *Soundarnand Mahakavya ka manovaigyanik adhyayan*. Kumaun. Dr. J.N. Joshi.

4. Lalithambal, K.S. *Rupavatara: A critical study*. Kerala. Dr. E. Eswaran, Nampoorthiry, Director in Charge, Centre for Vedanta Studies, University of Kerala, Kariavattom.

5. Sashirekha, R.P. *A critical study of Visnudharmottarapurana*. Bangalore. Dr. K. Rajagopalachar, Prof., Department of Sanskrit Bangalore University, Bangalore.

6. Suntha, R.C. *Vidhyanath praneet Prataparudiya ka sameekshatmak adhyayan*. Kumaun. Dr. H.N. Dixit, Reader, Department of Sanskrit, Kumaun University, Nainital.

7. Tandon, Kiran. *Sanskrit sahitya mein rajniti ka saidhantik tatha vyavharik rup: Srikrishan tatha Charkya ke sandarbha mein. D. Litt.* Kumaun.

Pali

1. Jain, Bhagchandra. *Studies in Jainism and Buddhism through Sanskrit courses. D. Litt.* Nagpur.

Punjabi

1. Amarbir Kaur. *Jaswant Singh Kanwal de novelan da alochnatmak adhyayan.* Delhi.

2. Gurdarshan Singh. *Jaswant Singh Kanwal de novelan vich pragativad da mulyankan.* Punjabi. Dr. Gurcharan Singh Arshi, Department of Punjabi, Punjabi University, Patiala.

3. Sarabjot Kaur. *Sahib Singh da Punjabi vartak sahit vich sthan.* Punjabi. Dr. Gurcharan Singh, Department of Punjabi, Punjabi University, Patiala.

4. Sarbjit Singh. *Punjabi lok kavi da sabhiyacharak adhyayan.* Punjabi. Dr. Jaswinder Singh, Department of Punjabi, Punjabi University, Patiala.

5. Shardev Singh. *Sai Bulle Shah: Chintan te kala.* Punjabi. Dr. Gurdip Singh Bhandari, Department of Punjabi, Punjabi University, Patiala.

Hindi

1. Agrawal, Radheshyam. *Swatantrayottar pramukh pauranik Hindi prabandh kavyon mein adhunik sandarbh.* HS Gour. Prof. L.N. Dubey, Department of Hindi, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Hussain Valli. *Premchandottar Hindi upanyason mein gram jeevan.* Venkateswara. Dr. D. Dastagiri, Reader and Head, Department of Hindi, Sri Venkateswara University College, Tirupati.

3. Jaiswal, Avinash. *Dinkar ka swatantrayottar sahitya: Ek punurmulyankan.* Osmania.

4. Mittalkod, Sidramappa M. *Sank Manikprabhu: Vyaktitva evam krititva.* Gulbarga. Dr. S.M. Kappikeri, Chairman and Head, Department of Hindi, Gulbarga University, Gulbarga.

5. Narasimha Murthy, B. *Adhunikyugeen Hindi Khandakavyon mein veeraras.* Bangalore. Dr. Kuldeep Chandra Gupta, Department of Hindi, Jnana Bharathi Campus, Bangalore University, Bangalore.

6. Sarma, Bhanwari Lal. *Samkaleen kavita: Astitvavadi pariprekshna.* Osmania.

7. Shambhunath Prasad. *The stylistic study of the poetic language of the important chhayavadi poets of Hindi.* Calcutta.

8. Singh, Ashok Kumar. *Sant sahitya mein prayukat Islami shabdavali ka arthmulak adhyayan.* Durgawati. Dr. T.N. Shukla, Department of Hindi, Rani Durgawati Vishwavidyalaya, Jabalpur.

9. Sreeletha, P. *Modern kavyas based on Mahabharata.* Kerala. Dr. V.P. Mohammed Kunju Matharu, Reader, Department of Hindi, Institute of Correspondence Courses, University of Kerala, Kariavattom.

10. Sumaretnakumari, K. *A comparative study of regional novels in Hindi and Malayalam.* Kerala. Dr. Vellayani Arjunan, Director (Retd.), State Institute of Encyclopaedic Publications, Trivandrum.

11. Tiwari, Gyanprakash Shivcharan. *Upendranath Ashk ka natya sahitya.* Nagpur. Dr. Durgashankar Mishra, P.W.S. College Nagpur.

12. Vasgam, T.S. *Influence of South Indian languages particularly Tamil in the dialect of Kurukh (Oraon).* Ghasidas. Dr. G.N. Tripathi.

13. Vijay Prakash. *Pandit Badri Narayan Premghan: Vyaktitva aur Krititva.* Osmania.

Oriya

1. Dash, Sabitri. *Oriya sahityare hasyarasa.* Sambalpur. Dr. K.C. Mishra, Lecturer, Department of Oriya, Khalikote College, Berhempur, Ganjam.

2. Lenka, Braja Sundar. *Gopinathanka upanyasare sahityara chitranuseelana.* Sambalpur. Prof. B.C. Acharya, Post Graduate Department of Oriya, Sambalpur University, Burla.

3. Mishra, Panchanan. *Oriya aitihasika natakara krama bikash, 1880-1980.* Sambalpur. Dr. Prasanna Kumar Mishra, Asst. Secy, Childrens Literature Committee, Bhubaneswar.

4. Mohanty, Purna Chandra. *Radhanathanka kabyare chitrakalpa pashchyata o prachya drustikonaru: Eka tulanatmaka adhyayana.* Sambalpur. Dr. A.C. Shukla, Reader, Post Graduate Department of English, Sambalpur University, Burla.

Marathi

1. Joshi, Alka Arvindrao. *Shri Gulabrao Maharajanchya bhaktisahityateel nammimansa.* Nagpur. Prof. M.S. Vabgavkar, Department of Marathi, Nagpur University, Nagpur.

Gujarati

1. Patelia, Shillas Yakub. *Life and literature of Swami Anand: A study.* Patel. Dr. Pramodkumar Patel, Prof., Department of Gujarati, Sardar Patel University, Vallabh Vidyanagar.

Telugu

1. Nagaraja Rao, A. *Mahamatopadhya kalaprapoorna Dr. Chilukuri Narayana Rao gari vangmaya vyasanga samalokanam.* Krishnadevaraya. Prof. S. Raghunatha Sarma, Department of Telugu, Sri Krishnadevaraya University College, Anantapur.

2. Sampath Kumar, M. *A descriptive grammer of Yerukala.* Madurai.

3. Satyanarayana Murthy, B.V. *Sakuntala in Telugu literature.* Bangalore. Dr. B. Ramaiah, Head, Department of Telugu, Jnana Bharathi Campus, Bangalore University, Bangalore.

Geography

1. Konwar, Munindra. *Land classification in the hill areas: A study of West Khasi Hills, District of Meghalaya.* NEHU. Dr. A.C. Mohapatra, Department of Geography, North Eastern Hill University, Shillong.

2. Pant, B.R. *Land utilization in Katadun Kumaun Himalaya.* Kumaun. Dr. D.S. Jalal.

3. Sharma, Parmita. *Urbanization in Haryana 1901-81: A spatial analysis.* Punjabi, Dr. Mehar Singh Gill, Reader, Department of Geography, Punjabi University, Patiala.

History

1. Arora, Harcharan Singh. *British policy towards Cis-Sutlej States, 1905-1947.* Punjabi. Dr. A.C. Arora, Department of History, Punjabi University, Patiala.

2. Chakraborty, Ashoke Kumar. *The Muslim intelligentsia in Bengal, 1835-1905.* Rabindra Bharati.

3. Chanderpal, Singh. *Early medieval art of Haryana: A study C.8th. to 12th century A.D.* Kurukshetra.

4. Chaudhary, Neelam. *The labour in Mughal India, 1526-1707.* Kurukshetra.

5. Ghosh, Rini. *An evaluation of the impact of Thomas Babington Macaulay's education minute of 1835 on the subsequent educational history of India.* Rabindra Bharati.

6. Kandpal, Prem Lata. *Aurangjeb ke kal mein Hinduon ka samajik, rajnaitik evam sanskritik jeevan: Ek adhyayan.* Kumaun. Dr. C.M. Agrawal.

7. Negi, V.D.S. *Kumaun ka samajik arthik itihas: 11vin shatabadi tak.* Kumaun. Dr. M.P. Joshi.

8. Panjani, Manoj. *Women's participation in the national movement, 1930-42: A case study of a few districts of Uttar Pradesh (Agra and Meerut) and Gujarat (Ahmedabad and Surat).* Delhi.

9. Raja Reddy, K. *Vietnam: Problem of national unification, 1954-1975.* Venkateswara. Prof. V.M Reddi, Department of History, Sri Venkateswara University College, Tiruapti.

10. Rajpur, Sushma. *Unnisvin shatabadi ke samajik, dharmik sudhar andolanon kee bhaudhik prishtbhumi.* HS Gour. Dr. S.S. Chouhan, Department of History, Govt. P.G. College, Narsinghpur.

11. Sarojani Bala. *Premchand and Indian nationalism.* Kurukshetra.

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— AGRICULTURAL SCIENCES IN THE TROPICS AND SUBTROPICS at the University of Goettingen; beginning April 1991.

— TROPICAL/SUBTROPICAL FORESTRY at the University of Goettingen; beginning 1991.

— MASTER OF INFRASTRUCTURE PLANNING at the University of Stuttgart; beginning August 1991.

— REGIONAL SCIENCE/REGIONAL PLANNING at the University of Karlsruhe; beginning April 1991.

— TECHNOLOGY IN THE TROPICS at the Fachhochschule Koeln; beginning April 1991.

— TROPICAL ENGINEERING at the University of Karlsruhe; beginning August 1991.

— RESEARCH AND TEACHING IN CHEMICAL ENGINEERING, TECHNICAL, AND PHYSICAL CHEMISTRY at the University of Karlsruhe; beginning May 1991.

— INDUSTRIAL MATHEMATICS at the University of Kaiserslautern; beginning August 1991.

— WATER MANAGEMENT IN TROPICAL AREAS at the Fachhochschule Nordostniedersachsen, Suderburg; beginning April 1991.

— PRINCIPLES OF RENEWABLE ENERGY USE at the University of Oldenburg; beginning August 1991.

— BIOGEOGRAPHY AND REGIONAL ASSESSMENT at the University of Saarlandes, Saarbruecken; beginning April 1991.

— HYDROGEOLOGY AND ENGINEERING GEOLOGY IN TROPICAL AND SUBTROPICAL REGIONS at the University of Tuebingen; beginning August 1991.

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Applications, in the prescribed forms (Summary in Eight Copies) are invited for the following posts so as to reach the undersigned on or before **25th July, 1990.**

Name of Post.	No. of Posts	Details including UGC specialisation if any.
(A) FOR TEACHING DEPARTMENTS		
PROFESSOR Rs. 4500-7300	(9)	One each in **Hindi, English, Economics, Ancient Indian History Culture & Arch. Botany** and **Geology** and **Three in Business Management.** The Post in Botany & Geology have lien only upto 31-7-90 and 20-7-91 respectively i.e. date of retirement of the present incumbants and permanently vacant thereafter.
READER Rs. 3700-5700	(8)	**One** each in **Hindi, Economics, Computer Science, Geology** (Applied Geology), **Chemistry** (Lien upto 13-2-91 likely to be continued) and **Three in Business Management.**
LECTURER Rs. 2200-4000	**(12)**	**One** each in **Sanskrit, English, Economics** (Econometrics), **Library & Information** Science (Reserved for SC/ST), **Computer Science Application, Business Management** (Reserved for SC), **Botany, Mathematics** and **Two each** in **Chemistry** and **Physics** (one in X-ray spectroscopy)

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Sr. System Programmer/ Sr. System Analyst	(1) Rs. 3700-125-4950-150-5700
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The minimum essential qualifications and other terms and conditions of the teaching posts are the same as prescribed by the University Grants Commission, New Delhi. The details of qualifications and other requirements in respect of both teaching and various posts of 'B' Level Computer Centre are attached with application form. The prescribed application forms alongwith desirable requirements etc., can be obtained from the undersigned on payment of Rs. 10/- by sending crossed Indian Postal Order payable to Registrar, Vikram University, Ujjain.

The forms will be issued upto **17.7.90** by post thereafter no forms by post will be issued. Forms will be issued in person upto **12.00 Noon** of **25.7.90** at cash counter in the University Office. If the forms are required under Registered cover Postal Order for an additional amount of Rs. 15/- should be sent to cover postal charges.

Cadidates in employment should send their application through proper channel. However in such cases advance copy may be sent. All appointments will be on two years probation except on lien posts. Superannuation age is 60 years. Scheduled Castes and Scheduled Tribes candidates will be given preference if found suitable.

Application received in University Office without prescribed fee of Rs. 10/- or on plain paper except advance copy or after last date i.e. **25.7.90 will summarily be rejected.**

The candidates who have applied previously for the post of Professor in Hindi, Economics, Reader in Chemistry, Economics and Lecturer in Economics in reference to advertisement dated 30.12.88 and 6.5.89 need not apply again. They may, however, send information, if any for incorporation giving their present address as well.

The University reserves the right to fill-up or not to fill-up any post advertised and also to call only the selected and well qualified candidates after making **SHORT LISTING** from the candidates who have applied for the respective posts for attending the interview. The University will not be responsible for any postal delay. The candidate should see that their completed application forms **reaches the University on or before 25.7.90.** No. T.A. and D.A. will be paid for attending the interview.

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J.R. : Job Requirements.

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For Post Sl. No. 1 (Reserved for S.T.).

Subject: Geophysics/Physics/Applied Mathematics.

F.E.: Research experience in Geophysical signal processing as evidenced, e.g., by publications in reputed journals.

J.R.: Data inversion, signal processing and numerical modelling of Geological/Geophysical data series.

For Post Sl. No. 2 (Reserved for S.C.)

Subject: Physics/Communication Engineering/Geophysics.

F.E.: Signal processing and pattern recognition.

J.R.: Study of the physics of rock failure processes. The work would involve processing of acoustic emission signals from rock masses fracturing under stress.

For Post Sl. No. No. 3 (Reserved for S.C.).

Subject: Geophysics/Physics/Mathematics/Statistics.

F.E.: Geoelectromagnatics, M.T. and Geomagnetic depth sounding (GDS) Methods.

J.R.: Data acquisition, processing numerical modelling and interpretation relating to MT and GDS methods.

B. TECHNICAL OFFICER 'B' Gr. III (4)

Scale of Pay:
Rs. 2200-75-2800-EB-100-4000

For Post Sl. No. 4 (Reserved for S.C.)

Subject: Electrical Engineering

E.Q.: B.E./B.Tech or equivalent in Electrical Engineering with 4-6 years experience in commissioning and maintaining LT and HT (upto 11 KV) electrical system.

OR

Diploma in Electrical Engineering of 3 years duration or equivalent plus 8-10 years experience in commissioning and maintaining LT & HT (upto 11 KV) electrical system.

Desirable: Experience with room and package Air-conditioners desirable.

J.R.: To participate in the augmentation and maintenance of electrical infrastructure of the Institute.

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Rs. 1640-60-2600-EB-75-2900

For Post Sl, No. 5 (Reserved for ST)

M.Q.: B.Sc. (Science)/Diploma in Engineering/Technology of three years duration or equivalent, plus 3-5 years relevant experience.

OR

M.Sc./B.E./B.Tech. or equivalent.

Subject: Physics/Instrumentation/Geophysics.

F.E.: Operation and maintenance of Seismological Observatory.

J.R.: Operation and Maintenance of a seismological observatory. The incumbent will be posted in North-Eastern region of India.

For Post Sl. No. 6 (Reserved for ST) As this is the 4th advertisement, S.C. Candidates may also apply for consideration, if suitable S.T. candidates are not available).

M.Q.: Three years Diploma in Electrical Engineering/Electrical Mechanical Engineering/Instrumentation from a recognised Institution or equivalent with 3-5 years experience in repairs and maintenance of air-conditioners, refrigerators and machine etc. in reputed organisation. Candidates having Graduate Degree in Engg./Technology in the field will also be considered. However, in the event of non-availability of suitable candidates with the above qualifications the candidates having the following qualifications may also apply for **this post.**

"SSC with Diploma/Trade Certificate of 18 months duration from ITI or equivalent in Electrical/Refrigeration/Air-conditioning/Instrumentation with 3-5 years experience in a reputed organisation"

Subject: Electrical

F.E.: Operation of uninterrupted power supply, generators, Air-Conditioners etc.

J.R.: Assisting in proper operation and maintenance of electrical support system for a computer centre.

D. **TECHNICAL ASSISTANT GR. III (1)**

Scale of Pay:
Rs. 1400-40-1800-EB-50-2300

M.Q.: B.Sc. (Science) or Diploma in Engineering/Technology of three years duration or equivalent.

For Post Sl. No. 7 (Reserved for SC)

F.E.: Seismic/DSS data acquisition and processing.

J.R.:

(i) Participation of DSS Field Operations, extending for six months in a year, in different remote places of INDIA.

(ii) Assistance in processing DSS data—manually and through computers.

For Post Sl. No. 8 (For Training Cell) (Reserved for ST)

J.R.: To assist the Head, Training Cell in NGRI in organising the Training Courses and Seminars.

Desirable: Knowledge in English Typewriting/Computer Data Entry.

GENERAL CONDITIONS

1. Except for Post Sl. No. 6, the candidates of the concerned Community for which the post is reserved, only are eligible to apply and for those posts candidates of other communities will not be entertained.
2. The number of posts are tentative and are subject to variation, depending on the number of vacancies at the time of selection.
3. The appointments to the posts of Technical Assistant Gr. III (2) and Technical Assistant Gr. III (1) will be on pensionable temporary service and likely to continue.
4. The appointments to the posts of Scientist 'B' will be on contract for a period of six years (including probation of two years) in the first instance. For candidates who are already permanent in

NGRI the appointment will be on regular basis.

5. The posts carry allowances as admissible to the Central Government Employees. The total emoluments at the minimum of the pay scales are as presently as under:—

Pay Scale		Total Emolumen*s
(i) Rs.2200-4000	:	Rs.3,536.00
(ii) Rs.1640-2900	:	Rs.2,788.00
(iii)Rs.1400-2300	:	Rs.2,227.00

6. Candidates with Engineering Qualifications, are liable to serve if so required, in any Defence Service or Post connected with the Defence of India for a period of not less than four years, including the period spent on training if any, provided that such persons (a) shall not be required to serve on the above said post after the expiry of ten years from the date of appointment and (b) shall not be ordinarily required to serve as aforesaid after attaining the age of forty five years.

7. Application for each post should be seperated and in plain paper with the following coulmns:

APPLICATION FORM FOR APPOINTMENT IN NATIONAL GEOPHYSICAL RESEARCH INSTITUTE, HYDERABAD-7 THROUGH ADVERTISEMENT NO..........

(TO BE FILLED IN BY CANDIDATE IN HIS OWN HAND WRITING)

1. Name of the Post for which applied :
2. Post No. :
3. Name of the Candidate (in Block Letters) :
4. Date of Birth :
5. Present/Permanent Address for Correspondance :
6. Qualifications:

Degree/Diploma	% of Marks in aggregate	Subjects	Year	University/ Board
1	2	3	4	5

7. Employment/Experience:

Designation	Period	Grade	Employer
1	2	3	4

8. Present Pay and Grade :
9. **Publications (if any)** :
10. **Prizes/Honours/Awards/Distinctions** (only important awards etc.) :
11. Whether any close relative is employed in NGRI; if so, give name, designation and relationship. :

Date: (SIGNATURE)

8. Application must be accompanied by copies of community certificate from the approved authority, Degree/Diploma of Qualifications and Experience Certificate.

9. The last date for receipt of application along with the copies of certificates is **13.7.1990.**

10. Applications from employees of Government Departments/Public Sector Organisations/Government Funded Research Agencies will be considered only if forwarded through the proper channel, certified by the Employer that the applicant will be relieved within one month of the receipt of the appointment orders, if selected.

11. Applications incomplete in any manner are liable to be considered as invalid.

12. In the case of Post No. 6 (Technical Assistant Gr. III (2)), candidates with experience less than the prescribed length, may also apply for consideration under relaxation subject to approval by Competent Authority.

13. A lower standard of suitability consistent with efficiency will be applied in the selection.

14. Higher start of pay may be considered in case of exceptionally moritorious candidates.

15. Candidates selected for interview will be paid single second class to and fro rail fare (by shortest routes) from the actual place of undertaking the journey or the place of address for correspondence in the application whichever is nearer to Secunderabad Railway Station, on production of relevant documents of travel.

16. Canvassing in any form and/or bringing of any influence, political or otherwise will be treated as a disqualification for the post.

17. INTERIM ENQUIRIES WILL NOT BE ENTERTAINED.

—K.R. Sarma
CONTROLLER OF ADMINISTRATION

UNIVERSITY OF HYDERABAD
HYDERABAD

(A Central University established in 1974 by an Act of Parliament)

EMPLOYMENT NOTIFICATION
No.-RECTT/8/90 Dated: 6-6-1990

The University of Hyderabad provides instructional and research facilities in all major branches of learning in Humanities, Social Sciences, Sciences, Creative Arts and Communication.

The University invites applications, in the prescribed form, for the following faculty and other positions:

FACULTY POSITIONS

1. **Professors** : Statistics (1); Hindi (1); Urdu (2); Comparative Literature (1); Anthropology (1)
2. **Readers** : English (2); Urdu (1); Translation Theory (1); Chinese (1); Japanese (1); Sanskrit (1); History (1) under UGC Special Assistance Programme; Political Science (1).
3. **Lecturers** : Applied Mathematics (1); English (1); Telugu (1); Political Science (1); Anthropology (1).

OTHER POSITIONS

4. **Controller of Examination (1)**
5. **Deputy Registrar:** (1) (Reserved for SC/ST)—tenure post for a period upto five years
6. **Executive Engineer** (Civil) (1)
7. **Asst. Registrar (1)**
8. **Estate Officer** (1) (One post reserved for SC/ST)
9. **System Supervisor in the School of Physics (1)**
10. **Medical Officers** (2) – (One post reserved for SC/ST).

Scales of pay and gross emoluments at the minimum of the scales are as follows:

Post No.	Scale of Pay	Gross Emoluments
1&4	Rs. 4500-150-5700-200-7300	Rs. 6,930
2,5&6	Rs. 3700-125-4950-150-5700	Rs. 5,930
3,7,8 & 9	Rs. 2200-75-2800-100-4000	Rs. 3,586
10	As above	Rs. 3,586 plus NPA of Rs. 600/- P.M.

Reservation in respect of teaching posts (Lecturers only) exists as per University rules for candidates belonging to Scheduled Castes and Scheduled Tribes. 3% of Lecturers posts are reserved for suitable physically handicapped candidates.

The prescribed application form and particulars of qualifications, experience, areas of specialisation for various teaching and other posts, likely number of vacancies can be had either in person from the Recruitment Section in the Administrative building, University Campus in Gachi Bowli, Hyderabad-500134 or by post, by sending a self-addressed envelope of the size 28 Cm × 13 Cm duly affixing postage stamps worth Rs. 3/- and superscribing on the top left corner of the envelope "Request for application for the post of........." to the Assistant Registrar (Recruitment), University of Hyderabad, P.O. Central University, Hyderabad-500134

The last date for receipt of applications duly filled in is **21st July, 1990.**

REGISTRAR

Shri Shivaji College of Art, Science & Commerce

PARBHANI – 431401 (Maharashtra)

Dated: 5.6.1990

Advertisement

Applications are invited for the post of Junior Research Fellow/Project Assistant in the U.G.C. sanctioned research scheme entitled "Studies in dust allergy"

The candidates (M.Sc. Bot.) who have qualified the N E T (GATE/U.G.C.-C S I R) test shall be considered for the appointment as J.R.F. with Rs. 1800/- P.M. fellowship and contingency as admissible. Candidates having only M.Sc. Bot. (Mycology & Plant Pathology) with 55% marks and without qualifying in the NET shall be considered for project assistant for a period of One year only with Rs. 1200/- P.M.

The application with all the particulars should reach to Principal, Shri Shivaji College, Parbhani (M.S.) 431 401 within **15 days from the date of this advertisement.**

Raosaheb Jamkar
President

S.N. Karande
Principal

THE UNIVERSITY OF BURDWAN

RAJBATI: BURDWAN
WEST BENGAL

Advertisement No. 1/90-91
Dated: June 13, 1990.

Applications in the prescribed form are invited for the following posts in the approved scales of pay i.e. Readership – Rs. 3700-125-4950-150-5700/- & Lectureship – Rs. 2200-75-2800-100-4000/- PLUS dearness and other admissible allowances and pensionary benefits according to University Rules.

(A) Readership in Business Administration... 1 Post (Lien Bound)

(B) Readership in Philosophy... 1 post (Lien bound but likely to be permanent)

(C) Lectureship in Botany...1 post

MINIMUM QUALIFICATIONS FOR THE POSTS:

As prescribed by the U.G.C.

SPECIALISATION OR PROFICIENCY:

For the post indicated at "A"	— Marketing Management
For the post indicated at "B"	— Psychology
For the post indicated at "C"	— Mycology and Plant Pathology

Those who applied earlier in response to advertisement No. 8/89-90 dated 4.10.89 for the posts indicated At "A" & "B" need not apply afresh.

Prescribed application form along with U.G.C.'s prescribed qualifications may be obtained from Rajbati, University of Burdwan, personally on payment of Rs. 10/- in Cash at the University Sales Counter from 11.00 A.M. to 12.00 Noon on Saturdays and 11.00 A.M. to 1.30 P.M. on other working days or by sending a self-addressed stamped (Re.1/-) envelope (11"×9") accompanied by Crossed Indian Postal Order of Rs. 10/- in favour of the Finance Officer, University of Burdwan.

Last date for submission of application with requisite application fee of **Rs. 5/- is July 5, 1990**

M.K. Chatterjee
REGISTRAR

BANASTHALI VIDYAPITH

(Deemed to be University)

Department of Computer Science

Applications are invited for the following posts:

Professor—One

Qualification: Good academic record with a doctoral degree with published work of high quality and about ten years experience of teaching and/or guiding research at doctoral level.

Note: Candidates from Industry/

Profession with professional work of high standard recognised as national or international level equivalent to doctorate may also be considered.

Pay Scale: 4500-150-5700-200-7300.

Readers—Two

Qualifications: Good academic record with a doctoral degree or equivalent published work, about five years of teaching experience and/or research/work experience in Computer applications or science.

Pay Scale: 3700-125-4950-150-5700.

Lecturers—Two

Qualifications: II M. Tech. (Comp. Sc.) or II M.E. (Comp. Sc.) or I M.Sc. (Comp. Sc.) or I.M.C.A.

Note: Candidates who have already applied for this post against advertisement 16/90 need not apply afresh but should intimate continued interests and additional information, if any.

Pay Scale: 2200-75-2800-100-4000.

Dearness Allowance, Contributory Provident Fund, Gratuity-cum-Insurance benefits as per Vidyapith rules.

Notes: (1) Women Preferred.

(2) Must become habitual wearer of Khadi on appointment.

(3) Selection Committee may recommend higher start or relaxation in experience in exceptional cases on merit.

(4) The Vidyapith reserves the right to reduce or increase the member of vacancies or not to fill-up any post advertised.

(5) Vidyapith will contribute travel assistance upto II class one side fare for all posts. However for the post of Professor one side I class fare will be provided.

Applications for Readership/Lecturership on prescribed forms must reach by **7th July, 1990.** Forms can be obtained by sending self-addressed stamped envelope of 16 × 23 cm size with Rs. 3/- stamps (or Rs. 8/- stamps for registered post) and Postal Order worth rupees 5/- in favour of Secretary, Banasthali Vidyapith. However, for the post of Professor, Bio-data on plain paper may be sent in confidence. All correspondence must be addressed to the Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith (Raj.)-304022.

No. 5/90

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited **upto 31.7.90** for the post in the Hqs. Office of the Council, New Delhi.

DEPUTY DIRECTOR GENERALS (two posts: I & II): (Rs. 4500-150-5700) + allowances as admissible to Govt. employees.

Qualification & Experience: Essential-for Post I: MBBS with research or teaching experience relating to communicable diseases, epidemiology or health services for 12 years (10 years only for those who have a doctorate in Medicine, preventive and social medicine, paediatrics, microbiology.)

For Post II: MBBS with research or teaching experience relating to Obst. & Gyane/Social and Preventive Medicine and Epidemiology/paediatries for 12 years (10 years only for those who have MD/MS in the above specialisations.)

Desirable Qualification: For Posts I&II: Original research work as evidenced by research publications.

Job requirement: For Post I: The incumbent is required to plan, coordinate and evaluate research activities in communicable disease and health services research including intramural programme of the Council and its permanent Institutes and ICMR extramural research projects in other Institutions.

For Post II: The incumbent will be required to plan, coordinate and evaluate research activities in the field of Human Reproduction with emphasis on Human Resources Development Research including intramural programmes of the Council and its institutes, and extramural research projects of ICMR in other institutions.

Age: For Posts I&II: Below 50 years

Conditions: Candidates called for interview will be paid Ist class return fare on production of documents. Non-practicing allowance is admissible to Medical Graduates only as per rules of the Council. Private practice is not allowed. Service under the Council is pensionable. The period of experience prescribed is relaxable at the discretion of the competent authority.

Application from employees working in Govt. Departments, Public Sector Organisations and Govt. funded research agencies should be forwarded through proper channel.

Application forms and other details can be obtained from the Office of the Director-General, Indian Council of Medical Research, Ansari Nagar, New Delhi-110029 **on or before 20.7.90.**

LAST DATE FOR RECEIPT OF APPLICATION: Forms duly completed should be sent to the **Director-General, Indian Council of Medical Research, Ansari Nagar, New Delhi-110029 alongwith a crossed Indian Postal Order for Rs. 8/- payable to DG, ICMR, New Delhi by 31.7.90.**

SC/ST candidates are exempted from this payment. Incomplete and late applications will not be entertained.

A.I.U. PUBLICATIONS

			Rs.
1.	Universities Handbook — 1989		600.00
2.	Equivalence of Foreign Degrees		180.00
3.	Handbook of Engineering Education — 1988		50.00
4.	Handbook of Medical Education — 1990		50.00
5.	Handbook of Management Education		30.00
6.	Handbook of Agricultural Education — 1986		40.00
7.	Handbook of Distance Education		In Press
8.	Association of Indian Universities — 1925-75		50.00
9.	Association of Indian Universities — 1925-85		100.00
10.	New Technologies in Higher Education	(HB)	120.00
		(PB)	80.00
11.	Studies in Distance Education	(HB)	60.00
		(PB)	20.00
12.	Universities and Research		45.00
13.	University Finance — A Statistical Profile II		75.00
14.	State Funding of Universities		50.00
15.	Elite in the Making		40.00
16.	Economics of College Education — A Study of Hindu College, Delhi		30.00
17.	Educational Statistics at a Glance		75.00
18.	Education and Economic Development		25.00
19.	Report of the Task Force on Autonomous Colleges and Departments		60.00

BIBLIOGRAPHY OF DOCTORAL DISSERTATIONS

		Rs.
20.	Social Sciences	50.00
21.	Humanities	100.00
22.	Physical Sciences 1857-1970	125.00
23.	Biological Sciences	100.00
24.	Social Sciences & Humanities — 1970-75	150.00
25.	Physical Sciences — 1970-75	120.00
26.	Biological Sciences — 1970-75	120.00
27.	Social Sciences & Humanities — 1975-76	50.00
28.	Natural & Applied Sciences — 1975-76	90.00
29.	Social Sciences & Humanities — 1976-77	70.00
30.	Natural & Applied Sciences — 1976-77	120.00
31.	Social Sciences & Humanities — 1977-78	90.00
32.	Natural & Applied Sciences — 1977-78	100.00
33.	Social Sciences & Humanities — 1978-79	90.00
34.	Natural & Applied Sciences — 1978-79	125.00
35.	Social Sciences & Humanities — 1979-80	90.00
36.	Natural & Applied Sciences — 1979-80	130.00
37.	Social Sciences & Humanities — 1980-81	120.00
38.	Natural & Applied Sciences — 1980-81	180.00
39.	Social Sciences & Humanities — 1981-82	150.00
40.	Natural & Applied Sciences — 1981-82	225.00
41.	Social Sciences & Humanities — 1982-83	160.00
42.	Natural & Applied Sciences — 1982-83	250.00
43.	Social Sciences & Humanities — 1983-84	180.00
44.	Natural & Applied Sciences — 1983-84	320.00
45.	Social Sciences & Humanities — 1984-85	200.00
46.	Natural & Applied Sciences — 1984-85	320.00
47.	Social Sciences & Humanities — 1985-86	200.00
48.	Natural & Applied Sciences — 1985-86	320.00

ON EXAMINATIONS

		Rs.
49.	Unfair Means in University Examinations — A Study	50.00
50.	Computer in Examinations (Why & How)	65.00
51.	Scaling Techniques: What, Why & How	75.00
52.	Conduct of Examinations	35.00
53.	Towards Better Questions	7.00
54.	Monograph on Grading	5.00
55.	Monograph on Question Banking	7.00
56.	Monograph on Internal Assessment	10.00
57.	Monograph on Test & Item Analysis	17.00
58.	Monograph on Question Banking in English Language & Literature '	10.00
59.	Monograph on Practical Examinations	9.00
60.	Monograph on Semester System	20.00
61.	Research Abstracts — Part I, II, & III Each	6.00
62.	Research Abstracts — Part IV	14.00
63.	Monograph on Sample Free Item Analysis	50.00
64.	Monograph on Moderation of Examination Results	8.00
65.	Monograph on Syllabus Analysis and Restructuring	10.00
66.	Monograph on Revaluation of Answer Scripts	12.00
67.	Assessing Non Scholastic Aspects of Learners Behaviour	14.00

STATUS REPORTS ON

		Rs.
68.	Grading in Universities	35.00
69.	Question Banking in Universities	25.00
70.	Internal Assessment in Universities	30.00
71.	Internal Management in Universities	30.00
72.	Preparations made by Universities to Receive 10 + 2 Input	30.00

QUESTION BANK BOOK SERIES

Undergraduate level *(English Script)*

		Rs.
73.	Mathematics	120.0C
74.	Physics	70.00
75.	Chemistry	75.00
76.	Zoology	50.00
77.	Botany	75.00
78.	History	45.00
79.	Geography	35.00
80.	Psychology	55.00
81.	Economics	75.00
82.	Commerce	45.00
83.	Political Science	35.00
84.	Foods & Nutrition	25.00
85.	Sociology	45.00
86.	English Language & Literature	30.00
87.	Physiology	45.00
88.	Pharmacology	35.00
89.	Automobile Engineering	35.00
90.	Law of Contracts	45.00
91.	Anatomy	60.00
92.	Constitutional Law	35.00
93.	Electrical Power System	75.00
94.	Zoology *(Hindi Script)*	100.00
95.	Chemistry *(Hindi Script)*	160.00

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		Rs.
96.	Mathematics	85.00

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98.	Handbook of Rules & Regulations for Inter-University Tournaments	20.00
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BOOKS ALSO AVAILABLE WITH LEADING BOOKSELLERS IN THE COUNTRY

Address Enquiries to: **Under Secretary** *(Publications)*

Association of Indian Universities
AIU House, 16 Kotla Marg, New Delhi-110 002
Telephone: 3310059, 3312305, 3312429, 3313390
Telex 31-66180 AIU IN GRAM. ASINDU

GURUKULA KANGRI VISHWAVIDYALAYA, HARDWAR-249404

(Deemed to be University)

ADMISSION NOTICE

Session 1990-91

Applications on prescribed forms are invited for admission to the following courses:

COURSE	DURATION	ELIGIBILITY CONDITIONS
1. **Vidyavinod** (Intermediate)	2 Years	High School or equivalent with Sanskrit & English, Purvemedhyama with English, Vidyadhikari GKV. Visharad(Pb) Pregya (MDU, Rohtak)
2. **Alankar (B.A.)** Vidyalankar/Vedalankar	3 Years	Intermediate or equivalent with Sanskrit & English, Vidyavinod GKV. Uttarmadhyama with English, Visharad (Pb. Rohtak)
3. **B.Sc.** Maths, Bio & Computer groups	3 Years	Intermediate or equivalent with Science for Maths & Bio group II class for Computer group Ist. Class.
4. **M.Sc.** Microbiology, Maths & Psychology	2 Years	B.Sc. Bio group with 50% Marks, B.Sc. Maths group II class B.Sc. for admission to M.Sc. Psychology (Under TDC pattern)
5. **M.A.** Vedic Lit. Sanskrit Lit. Philosophy, A.I.H. Culture & Archaeology, English Hindi, Psychology, Maths.	2 Years	B.A./B.Sc., B.Com. Alankar, Shastri, Acharya, Vidyabhasker, Sahityaratan (Allahabad) Under TDC pattern.
6. **Ph.D.** Vedic Lit. Sanskrit Lit. Philosophy, A.I.H. Culture & Archaeology, Hindi, English, Mathematics, Psychology, Zoology & Botany.	4 Years	M.A./M.Sc. with 55% marks in the subject concerned, who obtained 50% but below 55% marks will have to pass "Aptitude Test". Knowledge of Sanskrit and English of High School standard compulsory.
7. **Diploma in Yajna Vidhan** (Vedic Karam Kand)	One Year	Alankar, Shastri, B.A. or equivalent Exam.
8. **P.G. Diploma** Commercial Methods of Chemical Analysis.	One Year	B.Sc. Chemistry TDC with 50% marks
9. **P.G. Diploma** Computer Science and its applications.	One Year	M.A./M.Sc./B.E. 55% marks in any subject with mathematics as a main subject at graduate level & atleast II class career from High School to graduates.
10. **Diploma in Yoga**	One Year	Intermediate, Vidyavinod or equivalent examination.
11. **Proficiency in English** Learn how to speak and write English (certificate course)	3 Months	Admission by written test of Intermediate, English standard.
12. **Sanskrit 'Prevash'** (Certificate course)	One Year	High School or equivalent Exam.
13. **Sanskrit 'Praveen'** (Certificate Course)	One Year	High School or equivalent exam. with Sanskrit.

GENERAL INFORMATION

1. Girls desirious of taking admission to Alankar course should contact Principal, Kanya Gurukul, 47 Sevak Ashram Road, Dehradun (IInd campus of Gurukula Kangri Vishwavidyalaya, Hardwar)
2. Reservation to SC/ST candidates as per Govt. of India Rules.
3. For detailed information regarding teaching facilities, scholarship, freeships, Admission procedure, various courses of study and fees etc. Prospectus with application form other than Ph.D. may be obtained on cash payment of Rs. 10/- from the office of the Principal, Arts College and Science College respectively or by sending Bank Draft of Rs. 15/- payable to Registrar, Gurukula Kangri Vishwavidyalaya, Hardwar, Ph.D. application form and rules may be obtained on cash payment of Rs. 10/- or by sending Bank Draft of Rs. 15/- to the Registrar.

Last date of receipt of application forms:

Courses other than Ph.D.	**31st July, 1990.**
Ph.D.	**30th September and 31st December, 1990.**

Dr. Virendra Arora
REGISTRAR

SCHOOL OF CORRESPONDENCE COURSES

ANDHRA UNIVERSITY

WALTAIR

EXAMINATION NOTIFICATION FOR B.A./B.COM./B.SC. UNDER COMMON-CORE SCHEME

The last date for the receipt of Examination Applications together with the prescribed fees from the candidates appearing for B.A., B.Com. and B.Sc. Degree Examinations (under Common Core Scheme) through the School of Correspondence Courses to be held in July, 1990 is **25th June, 1990.** This notification applies only to the candidates appearing under Common Core Scheme through the School of Correspondence Courses only.

The dates of commencement of B.A./B.Com./B.Sc. under Common Core Scheme are as follows:

Examination	**Date of Commencement of Examinations**
I. B.A./B.Com./B.Sc.	**16.7.1990**
II. B.A./B.Com./B.Sc.	**24.7.1990**
III. B.A./B.Com./B.Sc.	**16.7.1990**

Applications received after the prescribed date will not be accepted. Incomplete and defective applications will be summarily rejected.

Examination application form and other particulars relating to the commencement of examinations, mode of payment of examination fee, list of centres, amount of examination fee, etc., will be sent to all the students of the School of Correspondence Courses who are studying B.A./B.Com./B.Sc. under Common Core Scheme.

Waltair
Dt. 2.6.1990

Prof. V. Abraham
DIRECTOR

Printed & Published by SUTINDER SINGH, on behalf of the Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110002. Grams: ASINDU. Phones: 3315105, 3313390, 3312305, 3310059 and 3312429. Telex: 31-66180 AIU IN
Printed by Navchetan Press (P) Ltd. at Navjeevan Printers, 1-E/2, Jhandewalan Extension, New Delhi-110055. Tel. 529157

University News

MONDAY, JULY 2, 1990 **Rs. 2.50**

Hon'ble Shri R. Venkataraman, President of India, presenting the Maulana Abul Kalam Azad Trophy to Prof Upendra Baxi, Vice-Chancellor of Delhi University. On his left are Mr. D.K. Mudgal, Director of Physical Education and Prof. I.P. Singh, Chairman, Sports Council of the University.

Grams : 'TECHNOLOGY' Phones : 227025, 228388

Jawaharlal Nehru Technological University, AP

MAHAVEER MARG, HYDERABAD – 500 028.

ADVERTISEMENT NO. C3/5/90, DATED : 18.6.1990

Applications in the prescribed form are invited for the following posts in the University:

Sl.No.	Name of the Post	Scale of Pay	No. of Posts
I.	**DIRECTORS:**	Rs. 1800-65-2125-75-2350 (APRS'78) Likely to be revised AICTE Scale of Pay of Rs. 5100-150-5700-200-7300.	2
	The Posts of Directors are at the Head Quarters of the University at Hyderabad.		
II.	**PROFESSORS:**		
	Civil Engineering	Rs. 4500-150-5700-200-7300	1
	Electrical Engineering	– do –	1
	Mechanical Engineering (with specialization in Thermal Engineering).	– do –	1
	Computer Science Engineering	– do –	2
	Water Resources	– do –	1
	Management Science	– do –	1
	Mathematics	– do –	1
	Social Science	– do –	1
	Systems Manager	Rs. 1500-2000 (UGC, 1976) (Likely to be revised.)	1
			Total: 10

Sl No.	Name of the Post	No. of Posts	Scale of Pay	O.C.	B. C.			
					A	B	C	D
III.	**ASSISTANT PROFESSORS:**							
	Group–II:							
	Chemistry	1	Rs. 3700-125-4950-150-5700	1	1	—	—	—
	Mathematics	1						
		2						
	Group–II:							
	Computer Science Engineering	1	Rs. 3700-125-4950-150-5700	2	1	1	—	—
	Mechanical Engineering (One post with Specialization in Thermal Engineering)	3						
	Total	4						
IV.	**LECTURERS:**							
	Group–III:							
	Computer Science Engineering	1	Rs. 2200-75-2800-100-4000.	3	—	1	—	—
	Civil Engineering	1						
	Electrical Engineering	1						
	Electronics & Communication Engineering	1						
	Total	4						

The application forms and instructions to candidates will be supplied on requisition accompanied by:

(i) A Crossed Indian Postal Order or Demand Draft for Rs. 25/- (Rupees Twenty five only) and Rs. 5/- (Rupees Five only) in case of SC/ST candidates payable to the REGISTRAR, JNT UNIVERSITY, HYDERABAD dated not earlier than 18.6.1990.

(ii) A Self-addressed envelope of size 22 × 10 Cms affixing Postal Stamps worth Rs. 5/- (Rupees Five only) if required by post. Last date for receipt of requisition for application is 21.07.1990.

Application forms completed in all respects accompanied by a Registration fee of Rs. 25/- (Rupees Twenty five only) and Rs. 5/- (Rupees Five only) in case of SC/ST candidates in the form of Indian Postal Order or Demand Draft payable to the REGISTRAR, JNT UNIVERSITY, HYDERABAD – 500 028 should reach the undersigned in person or by post before **5.00 P.M. on or before 21.7.1990.**

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Editor :
SUTINDER SINGH

You Can't Teach Without Training: Focus on Academic Staff Colleges

Shivendra K. Verma*

It has been felt for sometime that acquiring a formal degree in Arts/Science/Medicine/Commerce/Technology alone is not enough to make a person handle his job effectively and efficiently. He should be 'trained' to do his job well. The crucial concept here is that of 'training', which will be explained in developmental terms as we go along.

Emphasizing the role of teachers in the formulation and implementation of educational programmes as agents for social change, the National Policy on Education 1986 (hereafter NPE) states that teachers should have the freedom to innovate, to devise appropriate methods of communication and activities relevant to the needs, capabilities, and concerns of the community and also to undertake research and experimentation. The Government and the community should endeavour to create conditions which will help motivate and inspire teachers on constructive and creative lines (p.25). In *Programme of Action* (1986) the NPE calls for a substantial improvement in the conditions of work and the quality of teachers' education. Since teacher education is a continuous process, efforts should be made to keep on revising and updating the curricula for teachers' training in the light of new needs and new policy thrusts.

The present system at the tertiary level does not provide opportunities for the multidimensional growth of the personality of teachers. Summer Institutes, Seminars, Workshops, and Conferences have been organized in order to enable teachers to interact with students, with other teachers and experts, but no systematic attempt has been made to organize any ongoing teacher training programme with its focus on teacher development. The Central Institute of English and Foreign Languages, Hyderabad, as Institution of Higher Learning deemed to be a University offers a one-year post-M.A. Diploma Course in the Teaching of English and foreign languages. In the field of English it offers a parallel course using distance education as its mode. In addition, the Institute organizes a variety of need based, topic oriented courses for secondary and tertiary level teachers. The UGC has offered financial assistance to a number of universities to set up ELT (English Language Teaching) Centres for organizing training programmes for teachers of affiliated and constituent colleges.

Tertiary level teachers, it is widely believed, learn the art and science of teaching on the job by following the model of their teachers and/or colleagues. Unfortunately, this belief has not proved to be true. Infact, tertiary level teachers have been living in an Ivory Tower unaware of the grim facts around them. Their Tower-based, sheltered life has prevented them from being exposed to the excitement arising out of the explosion of knowledge in the field of teacher-education, philosophy of education, psychology of learning, applied linguistics, educational technology, restructuring of curriculum and evaluation systems. Current research in the field of education stresses the need for organizing orientation and refresher courses for tertiary level teachers, particularly for the newly appointed teachers, designed to help them use their talent with a fair amount of confidence and handle their human materials (i.e. learners)

**Director, Central Institute of English and Foreign Languages, Hyderabad – 500 007* with care, love, and understanding, keeping in view their role in the socio-cultural and intellectual setting in which they function. What is being proposed here is not a rigid programme but a need-sensitive programme of interactive/participative activities.

It is a pity that the word 'training' has acquired a bad odour about it, because what underlies 'it' is a 'nuts and bolts' approach to teaching. This is the reason why lecturers at the tertiary level have always opposed such programmes. According to their perception, training is meant for primary, secondary, and plus-two-level teachers and not for college and university teachers who feel that they know their job and can handle academic and organizational problems at their level, but the fact is that the students at the tertiary level find their teachers incapable of (i) translating their knowledge into classroom oriented practice, (ii) helping students 'learn how to learn', and (iii) working out a set of strategies for solving their local and global problems.

With a viwew to introducing training programmes with their focus on interactive activities and creativity, the University Grants Commission (UGC) has set up 48 Academic Staff Colleges (ASCs) at universities for organizing general, orientation courses and discipline based refresher courses for newly appointed college and university teachers. 45 Academic Staff Colleges have been functioning since 1987. In addition, the UGC has identified 150 University Departments/Institutions to conduct subject-oriented refresher courses for in-service teachers. These programmes are fully funded by the UGC.

The objectives of the Academic Staff Orientation Course (ref : *Academic Staff Orientation Scheme* : a working paper prepared by the UGC, May 1990) are to enable the newly appointed lecturers to:

(a) understand the significance of education in general, and higher education in particular, in global and Indian contexts;

(b) understand the linkages between education and economic and socio-cultural development and particular reference to the Indian polity where secularism and egalitarianism are the basic tenets of society;

(c) understand the role of a college/university teacher in the national goal of achieving a secular and egalitarian society;

(d) acquire and improve basic skills of teaching at the college/university level;

(e) be aware of the developments in his specific subject;

(f) understand the organization and management of a college/university and to perceive the role of a teacher in the total system;

(g) utilize opportunities for development of personality, initiative and creativity.

In order to achieve the above objectives, the UGC paper suggests that the curriculum for the Academic Staff Orientation Course should have the following components:

(i) Component A:

Awareness of linkages between Society, Environment, Development, and Education.

This component should aim at helping the teacher to realise the larger context of education and the role of a teacher in a society.

(ii) Component B:

Philosophy of Education, Indian Education System, and Pedagogy.

This component should aim at imparting basic skills that a teacher needs for effective classroom teaching.

(iii) Component C:

Subject Upgradation.

This component should have two major thrusts:

(i) to enable the teacher to translate the relevant syllabus into a detailed plan of classroom presentation, and to effectively present the basic concepts at the appropriate level, and

(ii) to make the teacher self-sufficient in keeping himself continuously abreast of the new knowledge in his discipline.

(iv) Component D:

Management and Personality Development:

Under this component an attempt should be made to familiarise the teacher with the organisation and management of his college/university. The teacher should understand the interlocking of the various subsystem within the college/university and appreciate the roles and functions of a teacher within the system.

Under Component D the teacher should be made aware of the ways in which he may develop his own personality. For the success of the academic staff orientation programme, it is necessary that every course should have an inbuilt monitoring and evaluation system... The participants should be assigned specific tasks and they should be required to submit assignments on the various components of the course as implemented by them in their day-to-day teaching and study. These assignments should be evaluated by instructors and discussed with the participants.... The course should be progressively modified in the light of the information collected through such assignments.

For a meaningful evaluation of a course three different kinds of evaluation may be carried out:

(i) Self-evaluation by participants in terms of their own perceived attitudinal change and skill enhancement:

(ii) Programme evaluation by the participants to evaluate the effectiveness of the programme;

(iii) Formal evaluation of participants in terms of their achievement.

It should be necessary to link the performance of participants at the course with career development. Therefore, it is recommended that confirmation of the newly appointed lecturers should be linked with successful completion of an academic staff orientation course. Those lecturers whose achievement at a course is unsatisfactory should be permitted to go through the course a second time before confirmation.

The NPE envisages that in addition to orientation course for newly appointed teachers, refresher course should be organised for all serving teachers in college and university departments. These refresher courses should provide opportunities for serving teachers to exchange experiences with their peers and to mutually learn from each other. Refresher courses should also provide a forum for serving teachers to keep abreast of the latest advances in the various subjects. With the introduction of orientation and refresher courses, it is hoped that the culture of learning and self-improvement will become an integral part of the educational system at the tertiary level.

For the orientation and refresher courses to be successful, it is necessary to orient administrators of higher education. Senior administrative staff, Heads of Departments, Principals and Deans would have to be oriented to accept the new culture and thereby make it possible for teachers to be creative.

According to the information available (April 1990) 16,176 teachers had participated in Orientation/Refresher Courses conducted by 43 ASCs till December 1989. The existing ASCs propose to organise 452 Orientation Programmes covering 23,783 in-service teachers during the next two years. These statistical details should be examined keeping in view the fact that we have a population of 1,50,000 lecturers and nearly 10,000 lecturers are likely to be appointed every year.

It may be useful now to look at the role of ASCs in teacher-development programmes. The Academic Staff College is an institutional realization of our thinking that every teacher needs training—the word 'training' used not in the sense of 'packing' and 'polishing' but in the sense of 'unfolding'. The assumption underlying the traditional notion of 'training' is that the trainer knows his job; he has himself undergone training or that he is mature enough to learn it on the job, but the trainees are 'raw' and need to be 'shaped'. The time has come when we should reexamine this position in the light of our new approach to the concept of 'training'—training as a process of self-development.

Education is a multidimensional activity. The main components of this activity are: learners, teachers, methods, and materials and the essence of this activity is interaction: teachers, learners, methods and materials in interaction. This interactional approach is different from a 'container-centred' philosophy of education which subscribes to the view that education is a process of pumping knowledge from a full vessel into empty vessels; that it is some sort of 'information dissemination' business. One of the salient features of the interaction-centred view of education is that teachers are learners and learners are teachers. Knowledge does not mean just information derived from books. It can't be just someone else's story. It is neither a point nor a product, but a process, a process of growth, of maturation triggered by a network of interactions 'between a particular, biologically—given, complex system—the human mind and the physical and social world'. Secondly, teaching is learning turned inside out. Thirdly, our learners are never passive recipients of someone else's story and 'ready-to-use' packages of knowledge. They are active participants in teaching-learning, activities. A student's performance may give us the impression that he is reproducing all that he has been exposed to, but infact, what looks like photographic reproduction is artistic recreation, for every learner has his own built-in camera, lens, and filters. He recreates the reality he perceives rather than passively receives it or reflects it. The purpose of education as interaction is 'to help human beings draw out their built-in generative power, experience the joy of adventure and discovery, and fortify whatever creative impulse they may possess.' This creative approach contrasts sharply with the traditional picture of the learner as a mass of plastic substance which the teacher has to press into a desired shape. Though the focus in this approach is on the learner: helping learners learn how to learn, the teacher is looked upon as the pivot of the system. He has more than one role to play. He has to play the role of a facilitator, of a leader of a cooperative enterprise in which development occurs through reciprocal give-and-take, the teacher giving but also willing to receive. He is expected to arouse enthusiasm and be a source of inspiration to his pupils. Teachers must try to understand their pupils—their needs, their interests, their abilities, their wishes, their aptitudes, and their problems. One remarkable advantage of such an attempt at understanding would be that it might make the pupils feel for the first time that there are friends around them. Their lapses, mistakes, and errors would then be viewed as creative properties of their growth in a multilingual, multicultural and multiracial society. Learners, young and old, need both security and liberty. A teacher must have enough sense to know when to interfere gently, otherwise there is no security. He must also know when to leave the learner alone, otherwise there is no liberty. Too much liberty may lead to chaos and too little to stagnation.

Teacher education must have three interrelated and mutually reinforcing components: (i) a course designed to update the teacher's knowledge not only of the subject or subjects he is teaching but also of related disciplines; (ii) a course designed to make them familiar with new techniques, technologies and the media including the philosophy underlying them; and (iii) a course designed to help them handle their knowledge of subject and methodology with care, understanding, and love, and thereby organize their teaching-learning activity in such a way as to contribute to the total development and growth of the personality of learners. The focus in our teacher training programmes must shift from teaching as a unidirectional, teacher-centred, knowledge-oriented, 'input-based', 'rearview-mirror'—directed activity to learning as learner-centred, experience-oriented, 'intake-based' interactional activity, including sub-activities like problem-solving, drawing inferences, making generalizations, and moving from the mundane to the sublime, from the trivial to the enduring. Our message for teachers as learners is that "knowledge emerges only through invention and reinvention, through the restless, impatient, continuing, hopeful inquiry men pursue in the world, with the world, and with each other." "Knowledge is produced in response to questions, and new knowledge results from the asking of new questions: quite often new questions about old questions."

It may be useful to organize a variety of interrelated courses at Academic Staff Colleges: gap-filling courses, remedial courses, enrichment courses, orientation courses, and refresher courses. The objective of all these courses should be to work with a group of young teachers and findout ways of creating a rich environment in which learners can externalize their ability to capture the system or network of systems underlying raw facts, to use language effectively in putting ideas together and imposing a design on them, to ask questions and respond to questions, to learn how to go about making socio-culturally and thematically significant choices. "All of these concepts constitute the dynamics of the question-questioning, meaning-making process that can be called 'learning how to learn'."

Is there any one particular method that can be used in all situations at the tertiary level? The answer is: 'No'. There are methods and methods. We should be familiar with the different methodologies of teaching but every teacher must create his own method and technique. The best method is the method that works. We are fortunate that we have access to a variety of sophisticated audio, video, and computer-based aids, but we must not forget that a teacher who is full of life, vigour, and imagination can convert even a simple aid like the blackboard into a very powerful tool. Resourceful teachers can make both simple and sophisticated aids function effectively. Audio and video lessons can take some of the best teachers of the country to the doorsteps of learners even in remote rural and tribal areas. What we are trying to say is that the man behind the machine is the prime-mover and he can put life into even simple tools found in and around his classroom.

One of the main objectives of these orientation and refresher courses is to enable the participants to look at the existing syllabi critically and develop new ones keeping in view the needs of learners and society, produce new materials, go in for a new evaluation system, a new context and learner-oriented methodology, plan seminars, workshops and summer institutes for teachers, and try to redefine units like 'lecture', 'tutorial', 'seminar', 'test', 'take-home assignments', 'semester-end and final exams', 'project work', 'dissertation', and 'thesis' in terms of their perception of education and offer suggestions regarding how to organize these units of teaching in meaningful and productive ways keeping in view concepts like 'teacher development', 'autonomous learners', 'context-generated methodology' and 'innovative materials'.

For ages we have been organizing our teaching and training programmes in terms of 'lectures', 'tutorials', 'seminars', 'monthly tests', 'term-end and year-end examination', but we have never answered the following questions: Why 'lectures' and 'tutorials'? What should go into lectures, tutorials, and seminars? How should they be organized? Should they be teacher-directed or learner-directed? Does a training programme mean inviting an assortment of experts to deliver lectures on principles of education, educational psychology, theories of learning, educational methodology, educational management, methodology, principles of evaluation and on discipline-based topics like linguistics, phonetics, grammar, interpretation of literary texts, remedial English and skills like reading, writing and comprehension? Do these experts form a team in order to design a framework based on learners' needs, or are they invited to deliver a couple of learned lectures on their topics without having any idea of what the other experts have done or are going to do? Can we assume that the ideas generated by these experts will get somehow organized into one unified system in the minds of the trainees? Isn't there a need for a coherent framework to help integrate the different course components and activities? Should theories emerge out of the success stories of teachers teaching in difficult situations: teaching in large classes with inadequate facilities, unmotivated learners, irrelevant syllabi, indifferent management, unreliable evaluation system, and university degrees and diplomas which do not have any market value? These are some of the questions that must be answered in terms of education as a process of growth.

It is sad and unfortunate that in education as in a number of other spheres we have been consumers and hawkers of imported materials, but not producers and innovators in spite of the fact that our country has had a long tradition of learning and represents a powerful laboratory in which we can carry out researches into different aspects of knowledge. We have been exporting our talents and importing 'ready-to-use', 'made-to-measure', 'do-it-yourself' packages based on setting and experiences entirely different from ours. We do need a model or a set of models to impose a design on reality but we should have the courage derived from field-experience to adopt, adapt, change, modify, expand and even replace the model or models on the basis of our problems, our insights, and the socio-cultural settings in which we are organizing our teaching-learning programmes.

Keeping in view the fact that we have a fairly large number of young lecturers to be offered orientation and refresher courses, the UGC must strengthen the Academic Staff College Scheme in terms of its academic and structural organization. The following suggestions are made in order to make these colleges play a much more effective role:

(i) In order to offer a well-organized, goal-directed programme, it may be a good idea to have a core faculty of 6 or 8 experts, each responsible for a given set of activities and topics. They should meet at least once before the course begins to draw the outline of their academic programme. This meeting should be followed by once-a-week meeting to review the work done during the week and then plan for the following week. This will give the participants a sense of direction and security. Too many experts representing different disciplines marching into and out of the classroom may leave the participants confused, overawed and puzzled. With a view to exposing the participants to the views of some of the best experts available, a programme of extension lectures (in addition to the main programme) may be built into the scheme.

(ii) A rich and exciting course should emerge out of an interaction between a framework based on Instructor's perception of what makes a good course and the participants' articulation of their needs and interests. Their active involvement in the decision making procedures of the course will make the course relevant and meaningful.

(iii) The programme (orientation course & refresher course) should be organized in such a way that the different components form a coherent frame of reference. If a course has a number of different and unrelated elements, it will leave the participants dissatisfied and frustrated.

(iv) The main objective of our ninety-minute sessions should be to activate the participants, make them talk, participate in discussions, offer suggestions for solving problems, and react to the points made by the experts/instructors. Experts/instructors should be advised to resist the temptation of lecturing for more than 30 or 40 minutes.

(v) As course organizers and instructors we must keep in view the fact that the participants are never 'raw'; they bring with them a lot of experience based on their classroom teaching and interaction with books and people around them. Our refresher courses should be so structured as to help teachers and learners generate their own stories and find solution to a variety of problems, some of which are listed below:

(a) Mr. A teaches English at the B.A. level. In his class he has 100 students of mixed ability ranging from those who cannot write even a couple of well-formed sentences to those who can express their ideas in a coherent way. What are the strategies that Mr. A should work out to make the process of learning an enjoyable experience and help the students learn the art of using English effectively?

(b) Mr. B teaches Mathematics at the B.Sc. level. He has been asked to prepare students for a traditional examination based on a syllabus which was first introduced 40 years ago. What are the ways in which Mr. B can be helped to make his teaching effective and meaningful within the framework of the existing syllabus and examination system and then slowly but definitely bring in a silent revolution necessitating a need-based change in the syllabus and evaluation system?

(c) Miss C is a young lecturer. She has tried out some of the new methods of teaching English as a second language at the undergraduate level. She has succeeded in making her learners internalize the systems underlying "English in Use", but she feels frustrated because the age-old system of examination does not permit her to get any useful feedback. How can we help Miss C get out of this phase of frustration and have the perspective and experience she needs to respond to the realities of her world?

(d) Mr. D is a fairly experienced teacher. He has taught English at the undergraduate level for twenty years. On the last day of one of the refresher courses organized by *X University*, he made the following remarks:

"Sir! What you have taught us is fine. It has given us a new insight into how English works. It has also made us familiar with the current trends in English Language Teaching.

Your talks on computer-assisted language learning and the use of audio-video cassettes in language teaching have boosted our morale, but the system that has been imposed on us by the administrators is a rigid one. There is no room for innovation and creativity in this sytem. We have to 'cover' the syllabus and 'train' our students to do well in the public exams.

How do we go about helping Mr. D get out of the grooves of this age-old system and organize his teaching of English on the basis of new ideas and new visions?"

Our messages for the Academic Staff Colleges is: let the instructors and participants together wrestle with situation-based problems and experience the excitement of finding solutions that are likely to work. This experience will give the participants a lot of confidence. There are no ready made solutions to their problems. No one seems to have found the method. A teaching strategy adopted with a fair amount of success by a particular teacher may not suit another. We may learn from the experiences of fellow travellers, but each one of us must ultimately work out a set of strategies (method & materials) designed to meet the communicative needs of a variety of learners in a variety of situations. The goal of this exercise should be to help learners increase their competence as learners and play an active role in knowledge-generating activities: observing, classifying, grouping, generalizing, testing, explaining, defining, questioning, describing and applying. These and similar training programmes should make teachers realize that teaching is life-long process of learning: it means expanding and refining their knowledge and also sharpening their tools and methodology: trying to have a deep and rich understanding of the subject and also trying out a variety of pedagogically interesting ways of sharing their knowledge and experience with their students. ☐

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MEDIA SUPPORT FOR HIGHER EDUCATION

Jagannath Mohanty*

Introduction

The system of Higher Education in India is very vast. The development of college education has been truly spectacular. There are as many as 189 universities and university level institutions and over 6,500 colleges in India. But the quality of higher education is said to be deteriorating day by day. The facilities—physical and human resources—provided in the universities and colleges vary widely and the course offered by them have not been properly organised to meet the new demands and emerging needs of the nation. The National Policy on Education (NPE), 1986 has rightly observed, ' Higher education provides people with an opportunity to reflect on the critical social, economic, cultural, moral and spiritual issues facing humanity. It contributes to national development through dissemination of specialised knowledge and skills. It is therefore a crucial factor for survival." (p.14) Particularly, it has to play a key role in developing human resources at various levels. The NPE, 1986 has aptly added, "In the context of the unprecedented explosion of knowledge, higher education has to become dynamic as never before, constantly entering uncharted areas."

The higher education has reached a stage, when consolidation is felt to be more important than expansion. It needs to be flexible, varied, equitable and efficient. Hence, the quality improvement has to be accelerated and relevance geared to the needs of the people with various infrastructural facilities, research and evaluation. Media support has been realised to be of immense significance to equalise educational opportunity, to make up the deficiencies, to remove disparities and to improve the quality of higher education in its different aspects and dimensions. The educational technologies with various electronic media have to be utilised appropriately and effectively for accelerating the pace of teachers' preparation, especially for improving the quality of teacher education and professional growth of teachers at various stages.

Constraints and Considerations

Higher education occupies an important place at the apex of the educational pyramid and helps developing the cream of the society—a select group of individuals—physically, intellectually, emotionally and socially. As pointed out by Menon and Sahoo (1984, p. 410) "These individuals should cultivate through higher education competencies required to take up leadership roles in various fields in the society. They are expected to develop the right attitude and independent and creative thinking to enable them to seek and cultivate new knowledge and pave the way for social progress". These individuals through various stages of higher education strive to acquire knowledge and understanding in various disciplines, develop higher cognitive abilities e.g. critical thinking, analytical and synthetic ability, develop certain affect attributes e.g. democratic outlook, scientific bent of mind, healthy attitude, social sensitivity and humanitarian values, and develop some desired psychomotor skills like manipulating certain equipment, operating certain machineries and drawing or designing appropriate graphs, charts, etc.

Higher education institutions cater to the needs and requirements of late adolescents and early adults who must have passed H.S.C. or +2 examinations and would be cognitively superior to those at school stage. The learners at this stage must have developed certain higher cognitive abilities and competencies for dealing with various viewpoints for making objective judgements for abstract thinking in verbal and symbolic terms. Further, the explosion of knowledge and information has exerted a great impact on the minds of these learners and has exposed them to great challenges of the emerging society.

India is called a sub-continent in view of its physical vastness. But it is also a country of various diversities in terms of language, caste, creed, socio-economic status, etc. These variations are also reflected in the learners groups and bring about variations in the cognitive abilities, affect attributes and other aspects of learning and personality development. Heterogeneity of learners also affects the teaching-learning situations adversely and divergently. Besides, there are multiplicity of academic courses growth of interdisciplinary courses and specialisation streams. These variations and diversities pose peculiar problems for teachers, supervisors, planners and administrators.

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These institutions naturally demand more resources, rich facilities and high technical personnel. In India, as a developing country, such financial, technical and human resources are limited and rather inadequate in view of the required massive infrastructure, large numbers and multiplicity of courses. Again, there are vast variations in the availability and provision of these facilities in the different levels and localities of the country. These differences are related to industrially developed and under-developed areas, rural and urban regions, thickly and scarcely populated parts of the country.

With a view to democratising higher education and making it available to the deprived and backward sections of the society, distance education and open university facilities have been provided in the country. These innovative systems and modalities bank heavily upon various electronic and other media in the teaching-learning process. The NPE, 1986 has aptly enunciated that "modern educational technology must reach out to the most distant areas and the most deprived sections of beneficiaries simultaneously with the areas of comparative affluence and ready availability" (p. 22). The modern media have the potential to bypass several stages and sequences in the process of development encountered in earlier decades. The media have a profound influence on the minds of the early adult learners of higher education.

Need and Nature of Media Support

As discussed earlier, educational technology has immense potentialities for augmenting educational facilities and improving the quality of education, particularly at the higher education stage. It includes *inter-alia* various modern and traditional media—radio, television, video recorder, audio recorder, close circuit TV (CCTV), films printing materials or graphics, etc. With a vew to making higher education available to various learner groups of vast diversities and catering to the requirements of different curricular courses, media support is essential. These media need be used in seminars, symposia, conferences, meetings, workshops, demonstrations and so on besides classroom teaching. In the various modern methods like programmed learning, team teaching, microteaching computer assisted instruction etc. different kinds of electronic media are indispensable or are largely required for ensuring effectiveness and efficiency in learning.

The age-old teaching methods like lectures or "chalk-and-talk" are not adequate to do justice to the intellectual, psychological and emotional needs of the learners of higher education at present. The various dynamic methods of teaching with the help of media appropriate to learning objectives and experiences need be adopted both in formal and non formal settings of education. Self-instructional materials with support of teaching machines, computers, TV and radio can make higher education very effective as well as interesting. The atmosphere of dullness lifelessness, inertia, inattractiveness should be replaced by an environment of ability, dynamism, interest and attractiveness. This can be done only with the use of different media.

Mass media can be used in planning and organising instruction for removing inequalities and regional imbalances (Yadav, 1985, p. 46). In this context it may be relevant to quote the "sesame street"—the programme meant for the American pre-school children, particularly of the deprived sections of the society. The Open University programmes of the United Kingdom similarly provide special educational TV (ETV) programmes for the socially and economically deprived persons. The open learning system through the open universities can play a significant role in facilitating learning by media supported summer courses, contact programmes, correspondence and distance education. Satellite communication system has made the learning process more cost-effective, more enlightening and more interesting.

The SITE Project implemented in the six states of India in the year 1975-76 was required to provide ETV programmes to the disadvantaged sections of the community in the rural areas. The INSAT education project being implemented since 1974 is also meant for the rural and backward areas. Both these projects however provided educational TV programmes for Primary Schools initially. At present programmes are being telecast for higher education with the help of INSAT-1B in addition to other ETV programmes. This has received a fillip in the context of implementing the National Policy on Education, 1986.

As reported by Ahmed (1982) most of the students in the Indian universities are now interested in getting degrees by selective study and cramming. It is therefore felt essential to provide media facilities for giving motivation and creating interest in knowing more and acquiring skills better. With a view to enriching the curricular programmes and making them interesting, media support is essential. Besides, the public TV, Close Circuit Television (CCTV) has great potentiality in playing significant role in education. Zeckhauser has found in his study (1972) that CCTV system can be more promising than the other media because of its special advantages that include its control of content quality along with its cost factor which has been found to be minimum for different groups of clientele. The Indian universities should plan for setting up and utilising this facility in an effective manner. The characteristics of this system include all features of film with the additional advantages of its immediate replay of events as in demonstration lessons.

In the system of CCTV, the educational programmes can be shaped according to the needs and capabilities of students. Its approach is also in consistency with the method of individual learning and in this approach each individual student can have the opportunity to suit his free time within the programmes at his own pace without any psychological barriers. This system provides facility for replaying immediately an event such as in lesson, demonstration, interviewing models, etc. These events enable students to train themselves in the skills through observation and discussion. General academic courses may be taught using this medium by motivating and activating the learners. The system may significantly contribute to remedial teaching by preparing specific programmes after diagnosing the deficiencies of the students. The UGC has recently taken steps for installing CCTV facility in various universities so that educational programmes can be taken to the study centres and classroom situations.

Emery (1965) and others have rightly observed, "Television and Radio are the electronic magic carpets that transport millions of persons each day to far away places. They are the twentieth century creations of the technological revolution that has been transforming much of the world for almost two centuries and their impact on our social, political and cultural life has been profound" (p. 249). Radio and Television have already made their impression on the educational world very strikingly. It is a fact that television comes out to be the most effective medium in communication with flexibility and versatility. As a multisensory medium, TV has immense potentiality for educational advancement and progress.

Hancock (1977) through a comparative study of the use of radio and television has shown that radio is superior especially in the area of music and language teaching whereas television is very suitable for teaching skills. Radio potential seems to be effective in non-formal education where not only cost, but also access to the audience and the immediacy is required to make it more flexible medium. According to Hancock, radio seems to be an easier medium for the amateur to master the desired skills and in participatory programmes radio is a potential instrument. Television is more convenient to life situations in visual forms and in the areas having the demonstration elements. There are however, some limitations of all these media which can considerably be reduced when other supporting media are incorporated in these systems, especially when these are cooperatively planned and produced. There are certain special techniques for making up the deficiencies of the media e.g. "print-radio" "Radiovision" etc. Thus the multi-media package should be developed for making the educational programmes more effective.

Educational films are a very powerful medium of education as well as entertainment. Films have much in common with television as they make use of both light and sound. However, films lack the immediacy of live telecast as a result of which they leave out something of the original reality. On account of this films are to some extent more abstract than TV. But abstractness does not mean difficulty or dullness and it makes films more real and more lively. Educational films are produced primarily for realizing some instructional objectives. They possess so much of versatility—combination of motion, worlds, colour and music. An educational film in a sense brings the "world into classrooms". It not only gives knowledge, but also develops insights, skills and understanding so very necessary for enabling students to assume suitable roles in the society. Such films can be of great use and importance to the learners of higher education. Even feature films and documentaries, if selectively and imaginatively used, can promote learning experiences to a great extent. Computers are likely to be used considerably for improving efficiency and effectiveness of higher education.

Conclusion

Eric Ashby (1967) has aptly observed that we are in the midst of the fourth revolution in education—the age of electronic media. These media are of different types and with variety of potentiality. They appeal to different or all senses at a time. Some of them like television and films are quite versatile in making use of all audio-visual aids and materials. Some like tape recorders or audio cassettes are very flexible in use. Radio programmes are so cost effective as well as powerful. CCTV system has tremendous potential to be suitable for specific learner groups and particular context needs, besides flexibility and freedom from external control. Computers have similar facilities of independent and individual use. All these media have to be appropriately used to suit the learning needs and objectives. They may often be utilised selectively in a package for ensuring the maximum effectiveness. Technical and economic constraints are important points for consideration particularly in the developing countries like India. Software has to be given more importance than hardware and small format technologies or "little media", according to Schramm, have to be given more emphasis than big media or highly sophisticated equipment. Satellite communication has revolutionalised the entire system of educational broadcasting. With adequate planning, imaginative production and appropriate utilisation of the media in education would bring rich dividends and make higher education cost effective, democratic, relevant as well as meaningful. □

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Technological Innovations in Literature Teaching

Man Mohan Lal*

It is difficult to imagine how far modern technological devices can facilitate the learning of literature. A great part of literature has generally two facades: poems are originally meant to be recited and dramas are primarily written for the stage; even the essays seem to replace long speeches addressed to readers; novels' function is no different from that of a film in reproducing a fragment of life with a single threaded plot. There was a time when written material was only a tool in preparing a play for the stage and helped the director prompt the actors. With the establishment of the Caxton Press in England in 1476, the written material began to be printed. This event revolutionized the world of literature as it multiplied the production of books, which, in a way, changed the whole system of learning. Printed literature was, thus, the first technological device in the realm of education. Now books have become so common that we have accepted them as the basic form of literature. Although by the middle of the nineteenth century pedagogues had started using visual devices such as pictures of natural scenes which were relevant to or helpful in teaching of poems, yet technological devices as slides, records, and silent films could be introduced only in the second decade of the twentieth century (Applebee 1982: 1107).

Even at present printed material is relied upon more than technological innovations. Not to talk of teachers of literature, even science teachers prefer written language:

> • Fortunately, the printed book has been a well established and well accepted medium at our universities for centuries, Furthermore, you can also argue that the abstractness of the written language might lend itself more easily to the teaching of abstract scienfitic contents than, for instance, the image on a TV screen which presents concrete phenomena and live situations. The more abstract you get in your academic teaching, the more adequate the printed word might become and hence, the more conductive it might be to the learning of abstract thinking (Peters 1988: 85).

Now in almost all developed countries, audio-visual aids in teaching of literature have become a common phenomenon. Bertrand Russel was of the opinion that literature could be made more agreeable with visual aids like the cinema (Russell 1951: 200). A drama or a novel can be rendered more comprehensible if it is taught by means of the screen. In India technological innovations have successfully attracted the attention of educationists since the eighth decade. Now when instructional and communication technology has rocketed to so great heights, it would not be wise to keep literary instruction confined to blackboard and books. It is high time we modernised the whole system of instruction and made it suitable for the computer age. Let us see how these devices can be effective in the teaching of literature at tertiary and postgraduate level.

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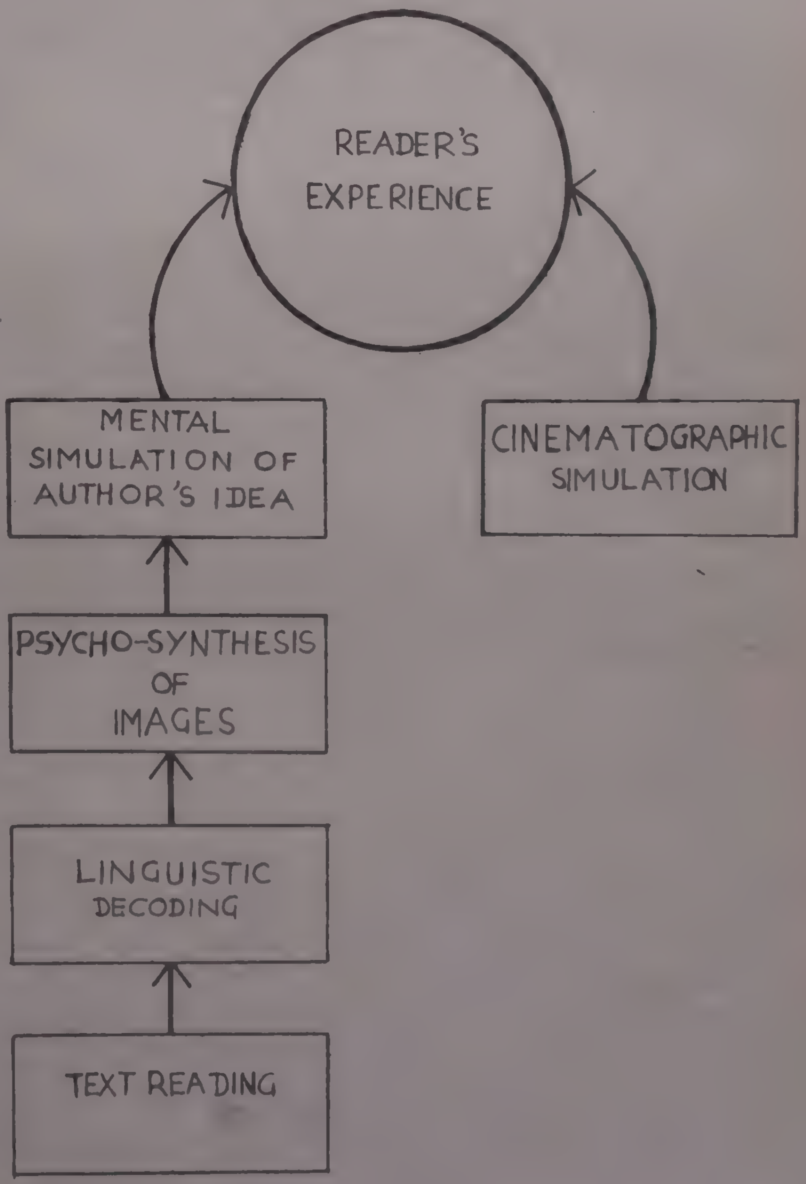
Audio-Visual Devices versus Text

Visual aids are the most effective tools of learning but many an educationist believes that at tertiary level their importance goes down as the learner's experience is, at this level, so rich and imagination, so mature that he hardly needs any visual devices to stimulate his interest and learning. But this is only a part of the truth. No doubt a B.A. student is too advanced to need any introductory information of his subject, especially literature, through a film, but a visual version of a novel or a play enables him to understand it more deeply and comprehensively. Visual reproduction has an infallible value when it comes to learning of a foreign literature. There remains always a culture gap between the experience of the learner and the milieu of the foreign literature. Words cannot bridge it. The learner's imagination may fall short of the actual idea; and in such a case a film about the general environment of the country which the story of the novel or the theme of the poem has been set in may help him understand it clearly. Sometimes a simple photograph of the scene in question may suffice but when we read English plays referring to subtle features of a milieu and persons, we need cinematographic reproduction.

Here one may have doubts whether the cinematographic version of a novel is true to the original idea of the author. No, any such version has all the possibility of deviating, however slightly, from the original viewpoint. But such a deviation should be taken for granted as it does not go very distant from originality whereas a student of even a postgraduate level, in the absence of any first hand knowledge of the milieu, may go astray to extent of absurdity. On the one hand a film version has its limitations, on the other it can reproduce the setting and the characters more authentically than the imagination of the reader. It is so because film production is a prolonged activity that involves a large team of workers viz. producer, director, cameraman, script-writer, set-makers, actors, musicians and so on. Their work is more or less identical to a research work, if not on the academic aspect, invariably on the life presented in the novel. Therefore the film-version of a novel can be regarded as an interpretation: a candid approach to the original view of the author. In a way it is an attempt to reach closest to the meaning of life the author aimed at. Thus there is not a great difference between a critical study of the novel and a cinematographic version thereof. Though both have their academic value, the latter is entertaining at the same time. One must not fail to notice that literature as text is always an indirect means of communication while a film can give a simulation of first hand communication. It shortens the distance between the text and the reader's experience.

Cinematographic materials are easy to prepare in the teaching of the novel and the drama, but poetry may pose some problem when it is converted into a visual experience. No version can claim to be authentic. The traditional lecture method is still very effective, provided the teacher has a good insight into the minds of his students. The experience gap between the poet and the learner can be narrowed by the process of assimilation which normally does not require any visual technology. "This can be done fairly well with a psycho-synthetic process. We have to search the mind


READER'S EXPERIENCE
MENTAL SIMULATION OF AUTHOR'S IDEA
CINEMATOGRAPHIC SIMULATION
PSYCHO-SYNTHESIS OF IMAGES
LINGUISTIC DECODING
TEXT READING

TEXT VIS-A-VIS VISUAL AIDS

of the learner for equivalent experiences. Suppose a student has never seen a sea, but if he has ever seen a flooded river we can just exemplify the immensity of the sea water with the flooded river... The assimilation process is natural and it works in a hypothetical way" (Lal 1989: 3). But it is no denying the fact that this type of assimilation can be done far better by visual aids than by lecture method. These aids can give an actual simulation of the setting, the stimuli of the poet, the images, the symbolic representation of abstract ideas etc. which may help the learner appreciate the poem fully. Besides, tape cassettes can record the poems in the original voice of the poet. These cassettes can be used like textbooks. This way we can do away with the centuries old tradition of indirect communication i.e. written or printed material.

Computer-Assisted Instruction in Literature

The future of the world will be dominated by the computer technology, whether or not the establishmentarians welcome it. Education will be no exception. The use of the computer in the field of academic instruction is getting more and more inevitable. We are passing through a phase of knowledge explosion, and without computers it cannot be managed. In each of us there lives a Doctor Faustus who wants to purchase knowledge, power, and beauty at the cost of his soul. Faustus fails but not man: he does not require now a Mephistophilis or a Lucifer. The computer is the brain for which he has been hunting for many centuries. Literature and computer seem to be heterogeneous, chiefly because there is a general notion about literature that it is a non-mechanical activity. Similarly we think literary instruction to be an exclusive affair of the teacher and the taught without any technology to go in between.

Computer is sometimes regarded as an unfit tool for instruction in literature as it is an individualized instructional device. The teachers of literature find it difficult to use it for a class of 40 to 80 students. It can be used, however, in small groups. One cannot negate the possibility of a small literature laboratory with modern apparatus and devices. In such a laboratory a computer can be used for assorted information about the history of literature, men of letters, their works, literary terminology etc. Besides, a computer can be fed with collected works of poets, dramatists and novelists. It can be used successfully for ready reference and research. We can classify the materials under different heads like themes, styles, genres. With the readily available information the study of literature, at the tertiary and postgraduate levels, will be not only deep and wide but also entertaining. There is, at present, a large range and variety of computers. A computer can also speak to the learner and analyse the value of spoken speech, and thus, it can produce a real life situation. It can assist, if not replace, the teacher in the classroom.

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DEVELOPMENT OF SCIENTIFIC AGRICULTURE IN INDIA

"In every Development Block an area of at least 100 hectares with good soil and assured irrigational facilities and other favourable agro-climatic features should be selected and the owners of the land supplied with all the required inputs, including the technical support to produce the high value crops and other agricultural commodities.... An input of about Rs. 25 to Rs. 50 lakhs over a period of three to five years to develop the 100 hectares of land should be equated to that of establishing an industry and the returns from such an investment should be assured to a level equivalent to, if not better, than that of any industrial undertaking" suggested Dr. G. Rangaswami, former Vice-Chancellor, Tamil Nadu Agricultural University, while delivering the Convocation address at the annual convocation of the Institute of Agricultural Sciences of Banaras Hindu University. "What is proposed is mainly to place agriculture on industrial footings, as a selective measure, which in the long run should have multiplier effect to cover large areas in the country. This will also improve rural employment opportunities. With increasing quantities of raw material which would become available under this programme, rural agro-based industries could also come up," he added. Excerpts

Convocation

While we have done well in respect of foodgrain production, we have to go a long way to reach a satisfactory level of scientific farming. In the past we have committed several mistakes in developing our agriculture and perhaps this was unavoidable, since somehow we wanted to produce the foodgrains for feeding the large population. We have brought under the plough a much larger area than what is considered scientifically balanced and this we have done by cutting down the forests and occupying sub-marginal lands for growing annual crops. As a result, an imbalance in the ecosystem has set in. This has caused several secondary and tertiary ill effects on the agricultural land. The overall average productivity of the land has been lowered and our agriculture is considered to be backward when compared to several developed and some developing nations. While our best agricultural lands yield as much as any other agricultural lands in the world, the harvests from the poor quality land is depressingly low, making the farm operations most unworthy. The financial imput require to improve the fertility levels of such lands is so high that neither the owners of the land can afford nor the Government could fully support them. Thus the overall performance of agricultural sector in India continues to remain sub-standard, compared with the developed and some developing countries.

To-day we claim to have achieved self-sufficiency in foodgrain production but this is only partly true, because we have not eliminated poverty in the country. The purchasing power of a good percentage of the people is too low to demand more quantities. While we have been able to meet the present market demand of foodgrains, we have not been able to provide the required nutritional quality of food to support healthy growth of the people, especially the infants and the youth. At least 40% of the people are living below poverty line and they are on nutritionally deficient and imbalanced diet. To provide the required quantity and quality of nutritional food to the general mass, we have to produce in the next 15 year period at least another 50% more foodgrains, and almost double the quantities of meat, milk, eggs, fish, vegetables, fruits and oilseeds than at present. Cultivable land being limited, the increase has to be through higher productivity of the land already under the plough. This calls for a major reorientation of our agricultural programmes and thrust areas of development.

The nation cannot improve its economy through agriculture by merely producing the required quantities of food items to satisfy the needs of its people, though this is a very important and major basic requirement. Agriculture will have to also provide the more raw material for the agro-based industries. It has to produce more of export-oriented commodities to bring the badly needed foreign exchange. Our emphasis has been mostly to become self-sufficient in various agricultural commodities, so as to avoid imports. Limited quantities of certain commodities, left over after meeting the local demands, were exported. Often we planned to export items like sugar, but ended up importing large quantities at a high cost to meet the local demands. The failure of monsoon severely affect the production of agricultural commodities and this causes cuts in exports and demands for higher imports. Therefore, we must devote increasing attention to produce for export such of the commodities which are in demand in the world market.

In respect of all these three approaches, viz., increasing the quantity of our major food crops, in providing the badly needed nutritional food items to our people, and in increasing the production of commercial crops and export commodities, we need to strengthen our production technology. We have the required natural resource potential and the technology for exploiting it. For example, we can produce enough cotton fibre, fabrics and garments to dominate the world market. Our tobacco, coffee, tea, sugar, spices, marine products etc. can dictate terms in international markets. Our milk, eggs, meat, vegetable and fruits can flood the markets of several developing and developed countries of the world. Any step taken to promote export of agricultural commodities would improve the economy of the country, increase the farmers' income and strengthen the purchasing power of the rural based agricultural labour force. Only then, we will be marching towards real 'self-sufficiency' in food supply and sound agri-based economic growth in the country.

A major step which helped 'Green Revolution' was our concentrated efforts in selected areas with assured irrigation facilities, in promoting intensive farming system by providing the inputs of seeds of high yielding varieties, fertilizers and pesticides in required quantities and the technical support to go with them. The orchestrated efforts paid rich dividents. A similar approach is required to make rapid progress in respect of several agricultural commodities.

In every Development Block an area of at least 100 hectares with good soil and assured irrigational facilities and other favourable agro-climatic features should be selected and the owners of the land supplied with all the required inputs, including the technical support to produce the high value crops and other agricultural commodities. It may be such commercial annual crops as cotton and sugarcane or fruit orchards, grown to most suited fruit plants of the area, or intensive meat, milk or egg production programmes. The highest possible technical input should be provided to owners of the land by the Government to make this a highly profitable commercial venture. An input of about Rs. 25 to Rs. 50 lakhs over a period of three to five years to develop the 100 hectares of land should be equated to that of establishing an industry and the returns from such an investment should be assured to a level equivalent to, if not better, than that of any industrial undertaking. In India we have the technology which will assure us the high returns from such an effort with no risk involved. In this context, I must take it clear that all other existing programmes, in support of rainfed and dryfarming and backward and tribal area development should continue so as to bring social justice to the people.

What is proposed is mainly to place agriculture on industrial footings, as a selective measure, which in the long run should have multiplier effect to cover large areas in the country. This will also improve rural employment opportunities. With increasing quantities of raw material which would become available under this programme, rural agro-based industries could also come up.

The returns from agriculture at present are depressingly low when compared with those of industry. Unfortunately the investments and inputs in agriculture are also low. While under the organized sector the industrial labour gets all the benefits, the agricultural labour being unorganized receives less attention. An illiterate or a semi-literate labour toiling for 8 to 10 hours in the farmland under the hot sun gets less than 50% of the emoluments of almost identical illiterate or semiliterate industrial labour, often from the same family or from a similar rural background. This causes several social disorders and leads to exodus of farm labour to urban areas. The best way to set right such economic and social disorders is to demonstrate that agriculture could also compete with industry. Development of commercial agriculture is possible only in irrigated lands and not in dry-farming systems. Therefore setting up of a commercial farm in each Development Block would set the ball rolling towards industrialization of agriculture in the country. In this context, I wish to emphasise that our approach should be highly specialized with an industrial outlook and not spreading thin our inputs. After all, if the incomes from agriculture were to be equal to that of industry, the overall productivity should substantially improve. Only then the income would be commensurate and the wages to the agricultural labour could be paid on par with that of the industry. This would also call for a remunerative market price for the produce. That agricultural income could be equal to that of industry has been amply demonstrated in some of the fastly developing countries like S. Korea and Taiwan. The earnings of a farmer owning about one-fourth of an hectare of farmland and carrying out mixed farming activities are stated to be equal to that of an Office Assistant or an industrial workers employed in the public or private sector.

In India the potentials of industrializing agriculture in limited areas and in selected locations are very promising. Not only we have the location-specific technologies for the purpose, but it will not also be difficult to identify enthusiastic and capable farmers for undertaking such programmes. In recent years, the enthusiasm of some farmers is such that they are more progressive and posted with better knowledge than the Government employed agricultural extension scientists. There are several examples of enterprising farmers making rich business out of farming. Several small landless labourers who started with a couple of dairy animals a decade ago are to-day owners of landed properties and large dairy herds with an assured annual return equal to that of any small scale industrialist. Some farmers who invested money in new orchards and nurtured them carefully for five to ten years have obtained outputs from the orchards giving them income equivalent to that of an industry. Intensive aquaculture, though highly capital intensive, brings enough returns to attract even big industrialists to this field of activity. Yields upto 50 tonnes of fish or 10 tonnes of shrimps valued at Rs. 5 lakhs per hectare in a year with an initial investment of about Rs. 2 to Rs. 3 lakhs, certainly would attract any industrialist, small or big. Better technologies to harvest upto 500 tonnes of fish per hectare in a year are now available. There are several success stories of farmers making rich money from ornamental plants, hybrid seeds, spices and condiments, selected vegetables etc. These successes should be emulated by more people to make it widespread all over the country. The needed technological inputs have to come from the agricultural universities and institutions and governmental extension organizations. Marketing of the produce from such a large number of undertakings should be well organized, with government support, minimising, the role of middle-men.

The basic requirements of land, water, agro-chemicals and technical inputs and the finances are to be assured on priority basis, for the proposal intensive commercial units, as was done in the case of high-yielding varieties of wheat and rice. Annually we add about 2.5 to 3.0 million hectares of land to our overall irrigated area in the country. Hence to identify areas with assured irrigation facilities for the intensive farming and for locating the orchards, aquaculture and/or dairy and poultry husbandry should not be difficult. The newer technologies which are being developed in the agricultural universities and institutions could be more readily implemented in such areas. Some of the research findings of these institutions can be readily commercialised. If such a programme takes off the ground systematically in the next ten years, the returns generated could support more such programmes in each Development Block.

Plant, animal and microbial biotechnologies which are receiving new thrusts in recent years have opened up new areas for the entrepreneurs to venture on. The technology available for sex-reversal in fish has helped to develop all-male populations for intensive culture whereby the competition for feed between male and female, and diversion of energy for reproduction are minimised and growth rate and feed conversion ratios maximised to harvest double the quantity of fish from a unit volume of water. Tissue Culture technology has helped to mass multiply in short periods of time many valuable plant species and varieties. It is now possible to mass produce at low cost artifical seeds through tissue cultured plant propagules. Mammanilian genes coding for insulin have been inserted as recombinant plasmids in *Escherichia coli* and insulin can now be obtained in large quantities at low cost from the genetically engineered bacteria. By transferring genes responsible for resistance to herbicides in tobacco plants, the weeds in tobacco fields can be eradicated by the herbicides without affecting the main tobacco crop. Genetic engineering is now working towards insertion of nitrogen-fixing genes from nodule bacteria into cereal plants and when this is successfully accomplished the need for applying nitrogenous fertilizers to the cereal crops would get reduced. Thus the technological support to increasingly industrialise agricultural sector is now available and more would become available in the coming years.

Agriculture as an applied science is becoming very attractive to the students seeking to pursue higher studies. The challenges of life have to be met by pressing into service the basic scientific knowledge for developing the technology. The relevant scientific knowledge for developing the technology. The relevant scientific technology to meet the country's growing requirements of food, feed, clothing and shelter for its people will have to be developed in the agricultural institutions. Such a technology has to match the production of commercial crops and the raw materials for agro-based industries. At present there is shortage of such a manpower in many branches of agricultural sciences and related areas of genetics, biotechnology, environmental sciences, etc. The availability of large scientific manpower in the country does not mean much when it comes to the question of achieving peaks of excellence in the advancing frontiers of agricultural sciences. In recent years some of the new thrust areas of life sciences have been adequately funded for their research works. To solve the complex and increasingly exacting problems of agriculture we need to attract the best students to the subjects of study. Second best students joining agriculture cannot be expected to shape into very best scientists to achieve excellence in solving the present and future problems. Several administrative steps have to be taken by the Central and State Governments, to attract the best students and also retain them in agriculture, besides encouraging the ones who are already employed to meet the challenges.

As in most other fields of science and technology, in agricultural sciences also knowledge explosion is taking place. Unless they update their knowledge systematically and at regular intervals in the coming years they will become outdated and backlogs and would slowly find themselves unfit to carry out their duties and responsibilities. While the farmers and the nation has to depend increasingly on the agricultural scientists, particularly the field extension specialists for their progress, the scientists would become less effective if they do not keep abreast of the developments taking place in their scientific areas of specialization with reference to the needs of the State and Nation. Governmental support would be required on a massive scale, to help the agricultural scientists to continuously update their knowledge and skill. The universities and institutions which train the graduates have a responsibility to help them in all possible ways in this regard. I therefore consider that a candidate, successfully completing a course of study and obtaining a University degree, is only making a beginning in the long spell of continuing higher education in his field of specialization. He has to continue to study and gain knowledge to stand him in goodstead upto his retirement from service and beyond. ☐

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CDE is a full-time multi-dimensional Management institution. Management Development Programme of the Centre are listed in the Compendium of Training Programmes prepared by the Ministry of Human Resource Development. Government of India and in the Directory prepared by the National Labour Institute, for the use of Asian Regional Team for Employment Promotion.

For Registration Form and Prospectus, (Rs. 25/-) please contact Reception, CDE, B-6, Unity Buildings, J.C. Road, Bangalore-2 (9.30 a.m to 5.00 p.m. Saturday—9.30 a.m. to 1.00 p.m.) Phone: 227392.

OR

CDE Library, (5.30 p.m. to 7.00 p.m. Monday—Friday) St. Joseph's College (Arts & Science), No. 18, Residency Road, Bangalore-25.

Sqn. Ldr. K. Ramakrishnan
DIRECTOR

National Symposium on Social Planning

The 'National Symposium on Social Planning' was organised by the Institute for Social Sciences and Research, Vellore, under the auspices of the Planning Commission, Government of India from 7th to 9th June 1990. Dr. M.Abel, Former Vice-Chancellor of S.K. University and presently Chairman of the Planning Board of ISSR presided while Fr.Dr. Sebastin S.J. delivered the inaugural address at the symposium which was attended by eminent scholars and experts from 10 different Universities, 2 Research Institutions and 10 voluntary organisations.

Dr. P.R. Brahmananda, a noted economist, in his key-note address dwelt at great length the distinct features of the Approach paper of the 8th Five Year Plan. He said the Approach Paper envisaged a vital change from the past and that it provided for decentralisation of the planning process with greater devolution of powers, including powers for mobilising resources to the districts and village level councils. He spoke of the several measures of social transformation through restructuring of Perestroika. He further stated that the concept of social development as a means to acquisition of material wealth and economic development had led to many social evils such as capitation fee, dowry, corruption, un-equal medical care, beggary and destitution. He hoped that the new wind that had come in the form of the Approach Paper would be implemented sincerely and that social evils may be checked through social planning as we aimed at economic development.

Papers were presented on the 'Concepts and Theories of Social Planning'. These papers emphasized Social Planning as a rational effort on constructive programmes for the community, which aimed at minimising the total cost of mobility of men and materials from one place to another and the total benefit of the plan should be commonly available for all in the community. It also stressed that the strategy of Social Planning assumed greater significance against the back drop of skewed socio-economic situation in our country. The session was summed up in the words of the greater French Thinker, Henri de Saint-Simon, 'The golden age of the species is not behind us, it lies ahead, it is in the perfection of the social order, our fathers didn't see it. Our children will one day achieve it and it is our duty to pave the way for them."

Prof. G. Chidambaram in his valedictory address called for a new orientation in the process and mechanism of planning. We needed, he said, a change in the degree of decentralisation. Stratification of men, into sects and sub-sects was not good for proper social and economic development. Men should be treated as one composite entity, he added.

The following recommendations were made:

Macro Techniques:

1. Bottom-up decentralised Social Planning should be avolved to make effective social and economic change in our bid to restructure the society.
2. Social development programme should ensure distributive justice.
3. People's participation should be the pre-requisite in all development programmes.
4. Greater participation of Voluntary agencies should be enlisted in the socio-economic developmental efforts.
5. Community colleges should be started at block levels as nucleus for mobilising and improving the local rural resources.

Health:

6. The domains of health sector should be expanded from its present concept of medical care to include safe drinking water supply, nutrition, sanitation and clean environment.
7. The health sector should be given the administrative responsibility of implementing school lunch programmes. The primary health Centres (PHCs) should manage the kitchen under the direct supervision of a trained nutritionist dietician.
8. A medical course should be newly designed by scrapping the surgical training. The Bachelor of Medicine (M.B.)/Community medicine (M.CM.) should be a three-year course including community development package. The graduate of medicine should be appointed in PHCs only. He will also be the "Social Physician" in the community.
9. To attract medical doctors to serve in rural areas, new medical colleges should be located only in rural areas.
10. Preventive and educational aspects of health care should be given more attention in the overall health care programmes.

Education:

11. There should be greater allocation of resources for education.
12. The user organisations like big industries and enterprises should contribute substantially

to develop skill formation education programmes.

13. More attention should be given to the removal of illiteracy particularly among SC/ST/Women and Physically handicapped people.
14. The subsidies which have been given to secondary and higher levels of education should be reasonably increased.

Rural Transportation:

15. Top priority should be given to the construction of all-weather roads in rural areas.
16. Maintenance of rural roads should be entrusted to the people in the particular region.
17. The students and youth in rural areas should be involved in the construction of rural roads and other development activities.

Women Development Studies & Information Network

The Osmania University Library & ICSSR Southern Regional Centre proposes to organise a Training and Orientation Workshop on Women Development Studies & Information Network from 10-12 August, 1990 at Hyderabad.

The network that has been envisaged is a decentralised system with different information centres located in select Universities, Research Institutions, Libraries and Documentation Centres throughout the country. These participating institutions will discuss as to how to interlink and coordinate a large number of information sources, systems and services into an effective flow of information relating to women and development.

The Workshop intends to work out a detailed programmes through discussion and practice as how to prepare different resource guides not only published and unpublished materials on Women and Development, but institutional and human resources also.

Delhi University Bags Maulana Azad Trophy

Delhi University has won the prestigious Maulana Abul Kalam Azad Trophy for the second time in succession. The trophy was awarded by Hon'ble Shri R. Venkataraman, President of India, at a special function held at Rashtrapati Bhavan on June 21, 1990. Prof. Upendra Baxi, Vice-Chancellor, received the Trophy on behalf of the University.

This trophy is awarded to the overall best university for their supremacy in the field of Sports and Physical Education. It carries a cash award of Rs. 50,000/- to be utilised by the University for procuring sports equipment from the SAI The universities securing 2nd and 3rd position viz. Guru Nanak Dev University, Amritsar and Punjab University, Chandigarh. are also eligible for cash award of Rs. 25,000/- and Rs. 10,000/- respectively.

PG Diploma in Management Recognised

On the recommendation of the Board of Assessment for Educational Qualifications, the Government of India has recognised the two year full time Postgraduate diploma in Management being conducted by T.A. Pai Management Institute, Manipal for the purpose of appointment to superior posts and services under the Central Government where a Master's Programme in Management is the prescribed qualification for recruitment. This recognition is effective from the year 1986.

News from Agril. Varsities

New Vistas in Plant Molecular Biology

The Project Planning Workshop on the centre for plant Molecular Biology was recently held at Tamil Nadu Agricultural University (TNAU), Coimbatore. Dr. H.K. Srivastava, Project Coordinator, Department of Biotechnology, Government of India, delivered the keynote address while Dr. S. Jayaraj, Vice-Chancellor of Tamil Nadu Agricultural University presided.

Prof. Srivastava in his address emphasised the need for quantum jump in food production to meet the food grains requirement in 2000 A.D. He said that in order to ensure sustainable agricultural development and equitable improvement of various agro–climatic zones, we should adopt 'Molecular approach', which was the need of the day. "By this our country would become self reliant and pave way for good grain expert". he visualised. He added that the molecular approach was a supplementary effort to the existing conventional approaches. Exploitation of hybrid vigour and hybrid vigour facilitating genetic enhancement was the thrust area of research.

Dr. S. Jayaraj, Vice-Chancellor, TNAU, in his presidential address outlined the key research areas that needed immediate attention viz., increasing the yield levels, quality improvement and resistance breeding for biotic and abiotic stresses. In order to get expertise from various sources, the scientists of this programme would be trained abroad in reputed institutions.

Ensuring need–based collaboration with the institutions in our country and abroad, the Vice–Chancellor announced that a 'Technical Steering Committee' would be formed to monitor the progress and suggest ways and strategies for further improvement.

Dr. S.R. Sree Rangaswamy, Chief Principal Investigator of this programme explained the core projects viz., genome organisation and wide hybridisation and methods by which the transfer of desirable genes was possible.

Strategy for Augmenting Pulses Production

The Crop Scientists' Meet on Pulses was recently held at Tamil Nadu Agricultural Unizersity (TNAU), Coimbatore to review the progress of various research approaches made during 1989–90 and to chalk out the future research strategies.

Dr.S. Jayaraj, Vice–Chancellor, TNAU in his presidential address stressed the need for developing appropriate technologies and simple farm implement for the skillful utilization by farmers. The facilities available in the newly started Biotechnology Research Centres would be utilized in the biotechnological approaches viz. somoclonal exploitation, wide hybridization and embryo rescue techniques for developing newer varieties carrying the resistance in major pulses crops. He pointed out the need for developing Heliothis resistant lines and viral diseases.

Dr. S. Chelliah, Director of Research, TNAU, in his welcome address, emphasised the need for developing high yielding varieties coupled with resistance for major pests and diseases and the required changes in the varietal scenario of pulses.

The pulses Group identified elite varieties and technologies for on–farm testing for the year 1991. Thrust areas were identified to carry out the need based research in the years ahead. Yearwise time frame was chalked out for five years for scaling the yield potential by 20 to 80% and also reducing the crop duration to cater to the needs unirrigated; under irrigated, under endowed, small and marginal farmers.

News from UGC

INSAT-1B Programme of UGC

Between 9th July to 14th July, 1990 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 Noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission
6.00 a.m. to 7.00 a.m.

9.7.90

"Polarisation of Light"

"Understanding Unemployment—II"

"Giants of the Microworld"

10.7.90

"Chemical Kinetics-II"

"Shadow Puppet Making"

"The Human Brain-II"

11.7.90

"Basics of Reinforced Concrete"

"Images of Women in History—III"

"The Crawling Creatures"

12.7.90

"Computers in Office Automation"

"Rites of Passage"

"Appreciation of Literary Forms-III: Lyric Poetry – The Ode"

13.7.90

"Gift of Numbers – III"

"Social Survey"

"Forests in Peril-II"

14.7.90

"Portraits of a City-II"

"Career Guidance—Modern Trends in Journalism—II"

"Pearl of Ceramics"

2nd Transmission
12.00 noon to 1.00 p.m.

9.7.90

"Colours-II: Reproduction"

"Management—2 : Management Functions"

"Agriculture and Biotechnology-II"

10.7.90

"Performing a Titration"

"Hip Cemented Arthroplasty"

11.7.90

"Solar Research – I"

"Forts of Deccan-I: Daulatabad"

"Female Reproductive Physiology"

12.7.90

"The Robots are Coming"

"Visual Anthropology–Concept and Approaches"

"Paninian Linguistics – IV"

13.7.90

"Origin of Universe"

"Footnotes"

"This Planet Earth - III: Land"

14.7.90

"Jean Rouch – A Retrospective-II"

"Tune in the Desert Tunes"

"Wonder Working Light"

ANDHRA PRADESH AGRICULTURAL UNIVERSITY

ADMN. OFFICE: RAJENDRANAGAR: HYDERABAD-30.

ADMISSION NOTIFICATION

Applications are invited for admission to the following Degree Courses for the Academic Year 1990-91.

GROUP.I

(i) B.V. Sc & A.H. (ii) B.Sc (Agriculture)
(iii) B.Sc (Horticulture (iv). B.H.Sc (Rural.)

GROUP.II

(i) B. Tech. (Agricultural Engineering)
(ii) B. Sc (Dairy Technology) (To be called as B. Tech (Dairying) from the Academic Year 1990–91 onwards.).

Candidates wishing to apply for one or more Courses under Goup–I need to submit only one application indicating preferences. Similarly those wishing to apply for one or both the Courses under Group–II need to submit only one application indicating preferences. Separate applications are prescribed for Courses under each Group.

THE CRITERION FOR CONSIDERATION FOR ADMISSION TO THE COURSES MENTIONED ABOVE IS THE RANK OBTAINED AT THE ENGINEERING, AGRICULTURAL AND MEDICAL COMMON ENTRANCE TEST, 1990 (EXAMCET–90) CONDUCTED BY THE CONVENER, EAMCET–90, REGIONAL ENGINEERING COLLEGE, WARANGAL ON 29–5–90 AND A PASS IN THE INTERMEDIATE EXAMINATION OR ITS EQUIVALENT. FURTHER DEAILS CAN BE HAD FROM THE PROSPECTUS.

Applications together with Prospectus can be had from the Prinicipals of 1. Agricultural College, Bapatla, Guntur District. 2. Agricultural College Naira, Camp Office Agricultural Research Station (Amadalavalase – Srikakulam Dist.) 3. College of Veterinary Science, Tirupati, Chittoor District. 4. College of Veterinary Science, Rajendranagar, Hyderabad–30. 5. College of Home Scenece, Saifabad, Hyderabad. 6. Agricultural College, Awaraopet, Khammam District and at the University's Agricultural Research Stations at WARANGAL, NANDYAL (Kurnool Dist.) and ANAKAPALLI (Visakhapatnam District).

Sale of application forms will commence from 25.6.1990 on payment of Rupees twenty in person or on payment of Rs. 25/– (inclusive of postal charges) through a crossed Demand Draft drawn from any Branch of Andhra Bank or State Bank of Hyderabad in favour of the COMPTROLLER, A.P. AGRICULTURAL UNIVERSITY, RAJENDRANAGAR. No postal order will be accepted. Information as to whether they desire to apply for Courses under Group. I or under Group. II must be clearly given in the requisition letters.

Requisitions for supply of Admission forms by post after **10.7.1990.** will not be accepted.

All Applications duly filled in should reach the Office of the Registrar, Andhra Pradesh Agricultural University, Administrative Office, Rajendranagar, Hyderabad–500 030 on or before **17.7.1990**. Postal delays will not be condoned.

Prof. S.M. Siddiqui
REGISTRAR

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A list of Research Scholars registered for Doctoral Degrees of Indian Universities.

PHYSICAL SCIENCES

Mathematics

1. Sharda Devi. *Stability analysis of some fluid dynamical systems.* HP. Dr. J R. Gupta, Department of Mathematics, Himachal Pradesh University, Shimla.

2. Sharma, Yogeshvar Dutt. *Displacement of fluids and instabilities in permeable media.* HP. Dr. R.C. Sharma, Department of Mathematics, Himachal Pradesh University, Shimla.

Statistics

1. Khurana, Amarnath Pratapsingh. *Some contributions to order statistics with application.* Devi Ahilya. Dr. V.D. Jha, Prof, School of Statistics, Devi Ahilya Vishwavidyalaya, Indore.

Chemistry

1. Jayasree, J. *Transformation of oxiranies by heterogeneous catalysis.* Kerala. Dr. C.S. Narayanan, Head, Division of Food Regional Research Laboratory, Pappanamcode.

2. Rajagopan, S. *Synthesis and characterisation of some lanthanide complexes.* Kerala. Dr. P. Indrasenan, Prof., Department of Chemistry, University of Kerala, Trivandrum.

3. Rajeswari, L.S. *Studies on alternate methods for the preparation of beneficiated ilmenite.* Kerala. Dr. P. N. Mohandas, Scientist, Division of Food, Regional Research Laboratory, Pappanamcode.

4.Shabu, V.S. *Chemistry of natural products.* Kerala. Dr. P.K. Rajan, Lecturer, Department of Chemistry, University of Kerala, Trivandrum.

BIOLOGICAL SCIENCES

Anthropology

1. Bandopadhyay, Koustuv Kanti. *Dermatoglyphics and human longivity.* H.S. Gour. Prof. P.K. Srivastava, Department of Anthropology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Bandopadhyay, Sainath. *The nature of finger and palmar dermatoglyphic asymmetry in an endogamous caste from West Bengal.* H.S. Gour. Prof. P.K. Srivastava, Department of Anthropology, Dr. Harisingh, Gour Vishwavidyalaya, Sagar.

3. Brahmbhatt, Anil Kumar. Perception of health and sickness behaviour patterns of Baigas of Mandla District, Madhya Pradesh. H.S. Gour. Prof. P.K. Srivastava, Department of Anthropology, Dr. Harishingh Gour Vishwavidyalaya, Sagar.

4. Gupta Kamlesh. *A socio-biological study of aggression.* H.S. Gour. Dr. A.N. Sharma, Lecturer, Department of Anthropology, Dr Harisingh Gour Vishwavidyalaya, Sagar.

5. Verma, Subhash. *Indigenous health practices and utilisation of health and family welfare services among the Gonds of small predominantly tribal pocket in Central India, Kurai Block, Seoni District.* H.S. Gour. Dr. A.N. Sharma, Lecturer, Department of Anthropology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

Biology

1. Georgekutty, M.I. *Studies on pathogenecity of Vibri disease in fish and shell fish of Trivandrum coast. Kerala.* Dr. K. Dhevendran, Department of Aquatic Biology and Fisheries, University of Kerala, Trivandrum.

Biochemistry

1. Prasad, Sarita. *Biochemical aspect of enzymatic enhancement of biomass digestion for the generation of biogas.* Shivaji. Dr. M.R. Dhawale, Senior Microbiologist, Shivsadan Griha Nirman Sahakari Society Limited, Sangli.

Botany

1. Jaiswal, Nitu. *Vesicular arbuscular mycorrhizain afforestation.* Delhi. Dr. K.G. Mukherjee, Department of Botany, University of Delhi, Delhi.

2. Prasad, Pramila. *Soil microbial population biomass and activity in a tropical agroecosystem.* Sambalpur. Dr. Niranjan Behera, Lecturer, School of Life Sciences, Sambalpur University, Jyoti Vihar, Burla.

3. Sahoo, Banshidhar. *Seasonal variations in the primary production, certain physico-chemical parameters and plankton of certain perennial ponds at Sambalpur.* Sambalpur. Dr. Ajay Kumar Patra, Lecturer, Department of Zoology, G.M. College, Sambalpur.

Zoology

1. Benny, K.J. *Neurophysiological aspects of rodents in relation to behaviour.* Kerala. Dr. Mathew M. Oommen, Department of Zoology, University of Kerala, Kariavattom.

2. Chaskar, Deepa Prabhakar. *Studies on the epidemiology of human gastro-intestinal nematode infections in selected endemic regions of Indore (M.P) and histopathological aspects of antiparasitic activity of certain benzimidazole compounds in experimental Syphacia obvelata infection in albino mice.* Devi Ahilya. Dr. (Mrs.) P. Kaskhedikar, Asstt. Prof., Department of Zoology, Holkar Science College, Indore.

3. Chaskar, Rajshree Prabhakar. *Studies on Chemotherapeutic, prophylactic and biochemical aspects if the anticestode activity of flubendaeole, piperazine citrate and ivermectin in experimental dwarf tapeworm Hymenolepis nana infection.* Devi Ahilya. Dr. (Mrs.) P. Kaskhedikar, Asstt. Prof., Department of Zoology, Holkar Science College, Indore.

4. Mishra, Bijan Kumar. *A study on air pollution and related environmental health hazards with special reference to thermal power plant at Talcher, Orissa.* Sambalpur. Dr. B.N. Naik, Lecturer, Post Graduate Department of Zoology, G.M. College, Sambalpur.

5. Purwar, Ravi Shanker. *Neuroanaatomical studies of male genital organ of Fenanbulus species.* Devi Ahilya. Dr. R.S. Purwar, Asstt. Prof., Department of Zoology, Holkar Science College, Indore.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities.

PHYSICAL SCIENCES

Mathematics

1. Chakrabarti, Agitbaran. *Study of some problems on special functions by group-theoretic method.* Calcutta.

2. Mukhopadhyay, Violet. *Probabilistic and stochastic approaches to some problems of statistical thermodynamics.* Calcutta.

Statistics

1. Bora, Debendra Nath. *Problems and prospects of sugar industry in Assam: A case study of Assam Cooperative Sugar Mills Ltd., Borua Bamungaon.* Gauhati. Dr. H.K. Borua, Reader, Department of Commerce, Gauhati University, Guwahati and Dr. Arun Ch. Borthakur, Prof., Department of Statistics, Gauhati University, Guwahati.

2. Gill, *Amar Nath. Nonparametric subset selection procedures for scale parameters and hazard rates based on two sample statistics.* Panjab.

Astronomy

1. Surendranath, P. *Satellite radio beacon studies of electron content during twenty first solar cycle at a low latitude station, Hyderabad.* Osmania.

Physics

1. Dubey, Prakash Kumar. *Studies on the role of activators in the mechano, electro and photoluminescence of zinc selenide phosphors.* Durgawati. Dr. S.C. Dutt., Prof and Head, Department of Physics, Rani Durgawati Vishwavidyalaya, Jabalpur and Dr. B.P. Chandra, Department of Physics, Rani Durgawati Vishwavidyalaya, Jabalpur.

2. Geethalathai, Denah. *Instability consideration in TTL NAND gates.* Bangalore. Dr. P. Srinivasan, Head, Computer Systems, National Aeronautical Laboratory, Bangalore and Dr. P. Paramasivaiah, Prof, Department of Physics, Central College, Bangalore.

3. Gopal Reddy, Ch. *Optical studies of yttrium doped alkali halide crystals.* Osmania

4. Jain, Kailash Chand. *In-beam gamma-ray spectroscopy from charged particle reactions.* Panjab.

5. Joshi, Hem Chandra. *Study of excited state relaxations in molecular systems.* Kumaun. Dr. T.C. Pant.

6. Mangalampalli, Srinivas Nandakishore. *Thermoluminescence of beta and gamma irradiated pretreated KCI: Ba.* Baroda.

7. Pande, Krishna Kumar. *Energy transfer and migration in some luminescent systems.* Kumaun. Dr. T.C. Pant.

8. Sarma, Shyama Prasad. *Development of science-literature in modern Indian languages with special reference to Assamese.* Gauhati. Dr. K.M. Pathak, Prof., Department of Physics, Gauhati University, Guwahati and Dr. Bani Sarma, Reader, Department of Modern Indian Languages, Gauhati University, Guwahati.

9. Saxena, Sushma. *Some aspects of electron impact ionization of atoms and irons.* Roorkee.

10. Upadhyay, Pushpa. *Some aspects of photophysics and photochemistry of uranyl ion.* Kumaun. Dr. D.D. Pant.

Chemistry

1. Anoop Kumar. *Electrochemical investigations of some biologically important organic compounds.* Roorkee.

2. Bhatt, Prashant Navinchandra. *Trace determination of metals and non-metals in the environment including high purity grade metals, alloys etc.* Baroda.

3. Gurprit Singh. *Transformation products of allantoids and their biological activity.* PAU.

4. Imran Ali. *Chromatographic studies of amino acids, their derivatives and compounds of biological importance.* Roorkee.

5. Janardanan, C. *Studies on some inorganic ion exchangers. Calicut.* Dr. S. Madhavankutty Nair, Department of Chemistry, University of Calicut, Calicut and Dr. C.P. Savariar, Perumbullichira, Florican Hills Road, Malaparamba, Calicut.

6. Joshi, Shubhangi, Chandrakant. *Studies in synthesis and reactions on isoflavones.* Baroda.

7. Mhaskar, Sunil Vyankatesh. *Biologically active compounds from natural materials.* Baroda.

8. Ramachandra, P. *Structure and reactivity of biologically active substrates: A kinetic and catalytic study,* Mangalore. Dr. B. Thimme Gowda, Reader, Department of Chemistry, Mangalore University Mangalagangotri

9. Rambabu, Kantipudi. *Thermodynamics of binary liquid mixtures.* Venkateswara. Dr. G.K. Raman, Department of Chemistry, Sri Venkateswara University College of Engineering, Tirupati.

10. Rajaram Peter. *Chemical examination of Diospyros species and synthesis of heterocyclic triterpenoids.* Osmania.

11. Satendra Singh. *Studies in dehydrogenation and reduction.* Baroda.

12. Shah, Girish Chandra. *Terpenoid composition of some aromatic species.* Kumaun. Dr. C.S. Mathela.

13. Soni, Rohit Ravikant. *Studies in the synthesis of chromenes and chromanones.* Baroda.

14. Tyagi, Vipendra. *Studies on ion-exchange membranes as ion – selective electrodes.* Roorkee

15. Umamaheswar Rao, V. *Chemical studies of the steroidal transformations.* Osmania.

16. Upadhyaya, Dushyant B. *Studies on organic complexing reagents.* Baroda.

Earth Sciences

1. Arun Kumar, I. *Multi-domain techniques for the interpretation of potential field anomalies.* Osmania.

2. Chidambaram, Lakshmanan. *Systematics and biostratigraphy of middle turonian to santonian foraminifera from Cauvery basin, South India.* Andhra.

3. Desai, Ashokkumar Govindlal. *Himmatnagar sandstones of North Gujarat, their depositional environments and tectonic framework.* Baroda.

4. Hedge, Subray Balachandra. *Manganese ores and their beneficiation studies, Gadag schist belt, Karnataka, India.* Karnatak. Dr. S.C. Puranik, Reader, Department of Studies in Geology, Karnatak University, Dharwad.

5. Hemant Kumar. *Application of nuclear techniques to ground water pollution monitoring.* Punjabi. Prof. H.S. Sahota, Department of Physics, Punjabi University, Patiala.

6. Mohindra, Rakesh. *Geomorphological and pedological studies of the Gandakmegafan and adjoining areas in the middle Gangetic plains.* Roorkee.

7. Nageswara Rao, Peddi. *Sedimentological and geochemical studies of Visakhapatnam – Bhimunipatnam Coastal sediments along East Coast of India.* Andhra.

8. Polinaidu, Buddha. *Magnetic anomalies and basement structure around Vizianagaram, Andhra Pradesh, India.* Andhra.

9. Vaid, Sanjiv Inder Mohan. *Laterite of Kutch: A study on the genesis and nature of occurrence.* Baroda.

Engineering & Technology

1. Bhatnagar, S.K. *Development of a quasi stationery flame front technique for the determination of steady flame spread rate of materials under the influence of external radiant heat flux.* Roorkee.

2. Datir, Upendra Dattatraya. *On mechanical behaviour of jointed rocks.* Baroda.

3. Kakati, Anjana. *An investigation of the recent developments in efficient elgorithms for solving linear and quadratic programming problems.* Gauhati. Dr. Malay Dutta, Reader, Department of Computer Science, Gauhati University, Guwahati.

4. Khandelwal, V.K. *Modelling an expert system in a typical diagnostic environment.* Roorkee.

5. Kothyari, U.C. *Socur around bridge piers.* Roorkee.

6. Prabhakar, S.R. *Thermodynamics behaviour of oxygen in metallic solvents.* Roorkee.

7. Rajvanshi, A.K. *Investigation of heat transfer phenomenon in nucleate pool boiling at high heat flux.* Roorkee

8. Sharma, T.P. *Studies on the burning behaviour of metal powder fires and their extinguishment.* Roorkee

9. Subhash. *Physico-chemical studies on high polymers.* Kurukshetra.

10. Vipin Kumar. *Studies of the effect of conducting grade carbon black in some epoxy glass composites.* Roorkee.

UNIVERSITY GRANTS COMMISSION

cademic Staff College - Schedule of further Orientation Programmes and Fefresher Courses during 990-91.

addition to the schedule of Orientation Programme and efresher Courses published during April, 1990, the proposed tes of such Courses to be organised during 1990-91, by the maining Universities are as under :

FRESHER COURSES

	Subject	Name of the University/ Institution	Proposed schedule during 1990-91	Catchment Area (Region)
	2	3	4	5
	Physics	Gauhati University Guwahati	13-08-90 to 02-09-90 23-10-90 to 12-11-90 05-12-90 to 25-12-90	East (Assam, Bihar N.E. States)
	Physics	Saurashtra University Rajkot	02-07-90 to 22-07-90 05-11-90 to 25-11-90 05-03-91 to 25-03-91	West (Gujarat)
	Physics	Jammu University	06-07-90 to 26-07-90 03-08 90 to 25-08-90 25-09-90 to 16-10-90	North
	Physics	Utkal University Bhubneswar	10-07-90 to 06-08-90 07-08-90 to 03-09-90 01-12-90 to 28-12-90 01-02-91 to 23-02-91	East (Orissa, West Bengal)
	Physics	Sri Venkateswara University Tirupati	02-07-90 to 21-07-90 01-10-90 to 22-10-90 03-01-91 to 25-01-91	South (Tamil Nadu Andhra Pradesh)
	Zoology	Gujarat University Ahemdabad	25-06-90 to 14-07-90 01-08-90 to 21-08-90 10-09-90 to 30-09-90 01-11-90 to 21-11-90 05-01-91 to 25-01-91	West (Gujarat) Central (Rajasthan)
	Zoology	Kashmir University Srinagar	07-06-90 to 27-06-90 03-08-90 to 28-08-90 05-09-90 to 25-09-90 03-10-90 to 23-10-90	North
	Mathematics	Saurashtra University Rajkot	30-07-90 to 19-08-90 01-12-90 to 21-12-90 11-02-91 to 03-03-91	West (Gujarat)
	Chemistry	Bihar University Muzaffarpur	20-08-90 to 09-09-90 08-11-90 to 28-11-90 17-01-91 to 06-02-91 16-02-91 to 08-03-91	East (Bihar, Orissa)
.	**Botany**	Calcutta Univesrity Calcutta	1st June, 1990 1st November, 1990	East (West Bengal, Orissa)
.	**Botany**	Karnatak University Dharwar	18-06-90 to 07-07-90 03-09-90 to 22-09-90	South (Karnataka, Kerala)
.	**Statistics**	Gujarat University Ahemdabad	04-06-90 to 24-06-90 03-12-90 to 23-12-90	West/North/ Central
.	**Statistics**	Karnatak University Dharwar	25-02-91 to 20-03-91	South
14.	**Geography**	Madurai Kamraj University Madurai	30-07-90 to 18-08-90 01-10-90 to 20-10-90 26-11-90 to 15-12-90 21-01-91 to 09-02-91 15-02-91 to 16-03-91	South
15.	**Psychology**	Utkal University Bhubaneswar	12-06-90 to 09-07-90 04-09-90 to 02-10-90 03-11-90 to 30-11-90 01-03-91 to 28-03-91	East (Except Bihar)
16.	**Home Science**	Institute of Home Economics New Delhi	17-12-90 to 05-01-91 (Clothing and Textile) 17-12-90 to 05-01-91 (Home Management)	North/Central
17.	**Urdu**	Kashmir University Srinagar	27-06-90 to 17-07-90 21-08-90 to 10-09-90	North (J. & K., H.P., Punjab, Haryana)
18.	**English**	Gauhati University Guwahati	08-06-90 to 28-06-90 11-07-90 to 31-07-90	East (Assam, West Bengal, N.E. States)
19.	**Commerce**	Gauhati University Guwahati	June-July, 1990 September, 1990 November, 1990 February, 1991	East
20.	**Commerce**	Himachal Pradesh University Shimla	23-07-90 to 11-08-90 26-11-90 to 15-12-90 17-12-90 to 05-01-91	North (Except Delhi, U.P.)
21.	**Commerce**	Allahabad University Allahabad	02-07-90 to 31-07-90 03-12-90 to 31-12-90 01-02-91 to 28-02-91	West
22.	**Education**	Himachal Pradesh University Shimla	13-08-90 to 01-09-90 08-10-90 to 27-10-90	North (H.P. Punjab, J & K. Delhi)
23.	**Tamil**	Tamil University Thanjavur	Sept.-Oct., 1990 Nov. - Dec., 1990 Jan.-Febr., 1991	All India
24.	**Political Science**	Gauhati University Guwahati	04-09-90 to 24-09-90 01-02-91 to 21-02-91	East
25.	**Linguistics**	Hyderabad University Hyderabad	02-07-90 to 28-07-90 07-01-91 to 02-02-91	All India
26.	**History**	Karnatak University Dharwar	09-07-90 to 28-07-90 22-10-90 to 10-11-90	South (Karnataka, Kerala)
27.	**Oriya**	Utkal University Bhubaneswar	05-10-90 to 01-11-90 03-01-91 to 30-01-91	All India
28.	**Economics**	University of Allahabad Allahabad	05-07-90 to 02-08-90 01-11-90 to 03-12-90 07-02-91 to 11-03-91	East
29.	**Economics**	Bombay University Bombay	August, 1990 November, 1990 February, 1991	West (Maharashtra)
30.	**Economics**	Sri Venkateswara University Tirupati	30-07-90 to 21-08-90 29-10-90 to 17-11-90 04-02-91 to 23-02-91	South (T.N. Kerala)
31.	**Philosophy**	University of Allahabad Allahabad	27-08-90 to 25-09-90 26-11-90 to 24-12-90 25-02-91 to 30-03-91	East/North
32.	**Philosophy**	Bombay University Bombay	June-July, 1990 Sept-Oct. 1990 January, 1991 March, 1991	West/Central

33.	Defence Studies	University of Allahabad Allahabad	18-08-90 to 14-09-90 17-11-90 to 14-12-90 02-03-91 to 21-03-91	All India
34.	Music	Indira Kala Sangit Vishavidyalaya Khairagarh	15-06-90 to 15-07-90	All India
35.	Journalism	Bangalore University Bangalore	02-11-90 to 22-11-90	South/West

ORIENTATION PROGRAMME

S. No.	Name of University	Proposed schedule for 1990-91
1.	Saurashtra University Rajkot	27-08-90 to 23-09-90 29-12-90 to 25-01-91
2.	Hyderabad University Hyderabad	08-10-90 to 03-11-90 15-02-91 to 14-03-91 18-03-91 to 17-04-91
3.	Gauhati University Guwahati	June-July, 1990 October-November, 1990 February-March, 1991
4.	Kashmir University Srinagar	04-06-90 to 02-07-90 06-07-90 to 04-08-90 17-08-90 to 13-09-90 17-09-90 to 14-10-90
5.	Himachal Pradesh University Shimla	25-06-90 to 21-07-90 03-09-90 to 29-09-90 29-10-90 to 24-11-90 04-03-91 to 30-03-91
6.	Karnatak University Dharwar	06-08-90 to 01-09-90 12-11-90 to 08-12-90 16-12-90 to 12-01-91 21-01-91 to 16-02-91
7.	Bombay University Bombay	11-06-90 to 07-07-90 16-07-90 to 11-08-90 17-09-90 to 13-10-90 19-11-90 to 15-12-90 21-01-91 to 16-02-91
8.	Sri Venkateswara University Tirupati	04-06-90 to 30-06-90 27-08-90 to 22-09-90 03-12-90 to 29-12-90 25-02-91 to 23-03-91

For further details and application form, please contact the Direct Academic Staff College or the Head of the Department in the concer **discipline at the respective University/Institution.**

davp 90/161

BIHAR UNIVERSITY

MUZAFFARPUR

ADMISSION NOTICE

An entrance examination will be held on the 24th July, 1990 for admission to M.Sc. Electronics course in Bihar University. A candidate having secured minimum of 50% marks at the B.Sc. (Hons) in Physics or Electronics with Mathematics or Physics respectively as one on the subsidiary subjects is eligible to appear at this examination. For SC/ST candidates the minimum eligibility marks at the B.Sc. (Hons) stage is 45 per cent. The candidates should not have completed 23 years of age and should not have passe M.Sc. examination. Such candidates who have appeared in B.Sc. Physics or Electronics (Hons) are also eligible to appear at the examination provided they fulfil other conditions and their result is published latest by the 16th August, 1990 and the information is furnished on the day following.

The last date for receiving applications (in prescribed form) completed in all respects is the **15th July, 1990.** Syllabus and applications form for the Entrance examination can be had from the office of the undersigned on submission of an application along with a bank draft of Rs. 15/- (Fifteen only) payable to the Registrar of this university at Punjab National Bank, Khabra Road, Muzaffarpur. No T.A. will be admissible to the candidates for appearing at the Entrance Examination.

M. JHA
DEVELOPMENT OFFICER

CLASSIFIED ADVERTISEMENTS

RAJENDRA AGRICULTURAL UNIVERSITY, BIHAR

PUSA (SAMASTIPUR)

Advt. No. 2/90

Applications are invited on the prescribed form for the following posts so as to reach the undersigned by **9th August, 1990.** Applications received in the office of the Assistant Director, Recruitment after the due date will not be entertained. The application forms alongwith other details, terms and cenditions may be had from the Assistant Director, Recruitment, Rajendra Agricultural University, Pusa (Samastipur) – 848125 personally or by sending self addressed Envelope of 23 x 6 c.m. size duly stamped with a postage of Rs. 7.60 (for registered post) for each post seperately. However, the forms and details may also be had personally from the **Principals, Bihar Veterinary College, Patna, Bihar Agriculture College, Sabour (Bhagalpur) and Tirhut College of Agriculture, Dholi (Muzaffarpur).**

Applications with all relevant documents and crossed postal order of Rs. 10/- for general and Rs. 2.50/- for Scheduled Castes/Tribes Candidates payable to the Comptroller, Rajendra Agricultural University, Pusa, Samastipur should be sent separately for each post to the "Assistant Director, Recruitment, Rajendra Agricultural University, Pusa (Samastipur) – 848125. All applications be sent only through registered post. All applications tenddered in any other manner shall be invalid. Applications fee sent with the application form shall be non-refundable. The name of the post applied for should be written in Capital letters on the top of the Envelope.

1. Director Research: 1 Post Permanent.
Pay Scale: Rs. 4500-7300/- with special pay of Rs. 250/-

Qualification: Essential:–

(a) Doctorate degree in any branch of Agricultural Science or Animal Husbandry and Veterinary Science.

(b) 10 years experience in teaching and/or research work as evidenced by published work in standard research journals of which at least 5 years experience should have been in a position in an institution inwhich research holds an important place.

(c) Evidence of leadership, outstanding achievements in research and organising research.

2. **Associate Director (Research):–** 1 Post.
Pay Scale: Rs. 4500-7300/- with a special pay of Rs. 200/-.

Qualification:– (i) Doctorate degree in any branch of Agril. Science/Animal Hushandry and Veterinary Science/Basic Science/Home Science/Agril. Engineering.

(ii) Ten (10) years experience of Research/Teaching and/or Extension Education in the subject concerned out of which at least 5 years experience in the rank of Senior Scientist/Associate Professor having research as a major component attached with the post.

(iii) Evidence of leadership and outstanding achievement in research and organising research as evidenced by published papers in journals of repute.

3. **Dean/Associate Dean (Home Science)** – 1 Post Permanent.

Pay Scale: 4500-7300/- Spl. Pay Rs. 250/- p.m.

Qualification:– (i) Doctorate degree in any branch of Home Science.

(ii) 10 years experience of teaching and/or reserach/or extension Education in the subject concerned, out of which five years period must be in the capacity or rank of a Univ. Prof./Assoc. Prof. (Relaxable to 6 years and 3 years in case of candidate having brilliant academic records).

(iii) **Desirable:–** Evidence of leadership and outstanding achievements in teaching and organising teaching in the faculty concerned.

(iv) Experience in managing a college/or T.G. Deptt. of an Agricultural University preferably offering U.G. and P.G. courses.

Note: If suitable candidate is not available for the post of Dean he/she may be considered for the post of Associate Dean-cum-Principal in the same scale of pay for which he/she will be entitled for a rent free accommodation in lieu of special pay of Rs. 250/- p.m.

4. **University Librarian, Pusa:** 1 Post Permanent.
Pay Scale: Rs. 4500-7300/-

Qualification:– (i) High Second Class Master's Degree in Library Science or Bachelor's Degree in Library Science followed by a post-graduate Diploma in Library Science. If a suitable person with Ph.D. degree in Library Science is available, he will be preferred.

(ii) Ten years experience of working in a Library of repute and full knowledge of the modern methods of Libray system including cataloguing, Indexing and use of Microfilms.

Desirable:– (i) Knowledge of Hindi and foreign languages viz., Russian, Cerman, French, etc.

5. **University Professor-cum-Chief Scientist Agriculture Economics.** 1 Post Permanent, Pusa.
Pay scale: Rs. 4500-7300/-

Qualification:– General:– Doctorate degree in Agricultural Economics.

Experience:– Ten years experience of teaching and/or research out of which half of the period must be in the capacity of Associate Professor/Senior Scientist.

Desirable: Good research experience as evidenced by published papers in Journals of repute. Leadership in teaching research.

6. **University Prof.-cum-Chief Scientist Bio-Chemistry:** 1 Post.

Pay Scale: Rs. 4500-7300/-

Qualification:–

(General):– Doctorate degree in the subject concerned with specialisation in the area concerned.

Experience:– Ten years experience of teaching and/or research out of which half of the period must be in the capacity of Associate Professor/Senior Scientist.

Desirable: Good Research Experience as evidenced by published papers in Journals of repute. Leadership in teaching research.

7. (i) **Senior Scientist-cum-Associate Prof. Sugarcane Mycology, S.R.I., Pusa.** I Post Permanent.

(ii) Associate Professor-cum-Senior Scientist in Extension Education. 2 Posts Permanent.

Pay scale: Rs. 3700-5700/-

Qualification: (i) Doctorate degree in the subject concerned.

(ii) Seven years experience of teaching and/or research/Extension Education out of which half of the period must be in the capacity of an Asstt. Professor/Junior Scentist in the required area of specialisation, working experience in the area of required specialisation.

8. **Assistant Porfessor-cum-Junior Scientist and equivalent in**

(i) Soil Microbiology	**2 Posts.**
(ii) Entomology	**2 Posts.**
(iii) Animal Breeding & Genetics	**1 Post.**
(iv) Dairy Microbiology	**1 Post.**

Pay Scale: 2200-4000/-

Qualification:–
(1) High Second class Master's degree of equivalent in the subject concerned.

(ii) Ph. D., if available will oe preferred.

9. **Technical Supervisor in Agro-Forestry (I.C.A.R. Coordinated Scheme):** 2 Posts.

Pay Scale: Rs. 1600-2780/-

Qualification:– B.Sc. Forestry.

TERMS AND CONDITIONSL

1. Specialisation means that person concerned has submitted thesis and/or has teaching and/or research experience in the field concerned.

2. Number of vacancies as indicated above may increase or decrease as per need and discretion of the University.

3. Reservation of seats for S.C., S.T., B.C.I. etc. as per Rajendra Agricultural University Status.

4. The University reserves the right to withdraw any post, to change the designation, qualification, pay scale and also not to fill up post even after selectione. No correspondence will be entertained in this regard.

5. Candidates employed in Govt. Departments/Public Sector undertakings/Automonous Bodies or elsewhere must bubmit their application through proper channel. If advance copy is submitted in that case, he must bring 'No objection certificate' with him at the time of interview, otherwise his/her candidature will not be considered.

6. Canvassing in any form and/or bringing in any influence will be treated as disqualification and will debar the candidetes for consideration even for interview.

7. High starting salary may be admissible to highly qualified persons on the recommendation of the selection Committee in a special case.

8. The services of the candidates appointed against the post in I.C.A.R. Schemes are liable to terminated with the lapse of the I.C.A.R. Scheme or the incumbent may be reverted to the lower posts, held previously, if any.

9. The period of experience is relaxable to a total of 6 years and 3 years in the capacity of Associate Professor/Senior Scientist foı University Professor level posts and 4 years and 2 years for Associate professor level posts for candidates coming under brilliant categories which means that throughout their career starting from matriculation onwards they should possess only one second class and the rest first class degrees.

R.C. Sinha
ASSTT. DIRECTOR (RECTT.)

KUVEMPU UNIVERSITY

B.R. PROJECT-577, 115 SHIMOGA DISTRICT
KARNATAKA

NOTIFICATION

NO.KU/EST-2(TS)(24)/90-91
Dated 20.6.1990.

Applications (in 8 sets) are invited for the following posts.

1. Librarian (1 post)-(Contract Basis)
2. Documentation Officer (1 post) (SC)
3. Reader in Kannada (1 post)

The pay scales and qualifications are those prescribed by the University Grants Commission (details will be given along with the applications).

The application forms may be obtained from the Registrar, Kuvempu University, B.R. Project, on sending (i) a crossed Demand Draft of Rs. 30/- on any branch of State Bank of Mysore payable at State Bank of Mysore, B.R. Project and drawn in favour of the Finance Officer, Kuvempu University. (ii) A self-addressed envelope (6"X12") with stamps affixed for Rs. 5.00.

The last date for receiving the applications is 15.07.1990.

Incomplete applications are liable to be rejected without communications.

REGISTRAR

Maharshi Dayanand University, Rohtak

Corrigendum to Advertisement No. 3/90

The following posts advertised vide Advertisement No. 3/90 may be read as 'open posts' and the field of specialisation already prescribed be treated as withdrawn:

1. Professor of Commerce
2. Professor of English
3. Reader in English
4. Lecturer in English (U.T.D.)

Last date for receipt of applications in respect of the above mentioned posts only, is extended upto **9.7.90**.

K.S. Sangwan
REGISTRAR

HIMACHAL PRADESH UNIVERSITY

"RECRUITMENT BRANCH"

Advertisement No. 3/90

Applications are invited (on prescribed form) for the following teaching posts, so as to reach the ASSISTANT REGISTRAR, RECRUITMENT BRANCH, H.P. UNIVERSITY, SHIMLA–171 005, alongwith a crossed Indian Postal Order of Rs. 20/– (Rs.10/– for S.C./S.T.) payable to the Finance Officer, by **July 26, 1990.**

I. **PROFESSORS** (Pay Scale: Rs. 4500-7300) in the teaching departments in the following subjects:

Sanskrit-1, Computer Science-1.

II. **READERS** (Pay Scale: Rs. 3700–5700) in the teaching departments in the following subjects:

Chemistry-1 (Specialization Organic/In-organic/Analytical/Spectroscopy/Physical Chemistry.
Education-1 (Specialization in Educational Psychology)
Music-1, Political Science-I

III. **LECTURER-1** (Pay Scale: Rs. 2200–4000) in the Academic Staff College.

The qualifications for the above mentioned posts are the same as per U.G.C. guidelines and adopted by this University from time to time.

Candidates already in service should send their applications through proper channel. An advance copy however, may be sent direct.

Candidates called for interview will have to come to the place of the interview at their own expenses and bring with them their original research papers, degrees and certificates etc. for verification.

The University reserves the right to negotiate with suitable person or persons, if necessary, who may not have applied formally.

The University also reserves the right to fill up or not to fill up the post/s or to call only suitable candidates for interview. The number of posts likely to be filled may vary.

Other things being equal, preference will be given to the candidates belonging to the Scheduled Caste/Scheduled Tribe for appointment to the post of Lecturer.

Applications form alongwith detailed qualifications can be obtained from the **Assistant Registrar, Recruitment Branch, H.P. University, Shimla–171 005**, personally on payment of Rs. 5/– or by making a written request to him accompanied by self–addressed envelope of 23 x 10 Cms. With postage stamps affixed worth Rs. 2.00 only and postal order of Rs. 5/– drawn in favour of Finance Officer, HPU.

NOTE:
- (i) Applications received on plain paper, applications not in conformity with the requirements as specifide in the application form and applications received after the last date will not be entertained and no correspondence will be entertained in this regard.
- (ii) A person applying for more than one post should send a separate application for each post.
- (iii) Persons who have applied earlier in response to advertisement No. 1/90 dated 5–1–90 for the post of Professor in Computer Science, Advt. No. 2/89 dated 21.4.89 for the post of Prof. in Sanskrit, Reader in Music and Advt. No.6/88 dated 17.11.88 for the post of Reader in Political Science, need not to apply again. However, they may send additional information, if any.

A.R. Chauhan
REGISTRAR

UNIVERSITY COLLEGE OF MEDICAL SCIENCES AND GURU TEG BAHADUR HOSPITAL

SHAHDARA, DELHI–110095

Advt. No. MC/ESTAB/2/11/19–111

Applications on the prescribed form are invited for the following teaching posts to reach latest by 31.7.1990.

(1) **Professors:** Rs. 4500–7300 — One each for the Department of Microbiology, Medicine, Psychiatry*, Dermatology & STD and Ophthalmology.

(2) **Readers:** Rs. 3700-5700 — One each for the Department of Pathology,* Psychiatry (Temp.), E.N.T., Radiology (Radio–therapy), Dermatology & STD* and Anaesthesia,* two posts each for Biochemistry (1+1c*) and Obst. & Gynaecology*

(3) **Lecturers:** Rs. 2200-4000 — One post for the Department of Pharmacology* and Surgery (two posts).

E.Q. for Professors, Readers and Lectures: P.G. in the subject concerned as included in the Schedules of Medical Council of India Act. 1956/Ordinace XXIV of the University of Delhi. For Non-Clinical Departments persons possessing M.Sc. with Ph.D./D.Sc. in the subject concerned will also be eligible.

Experience required: Professor: 5 years as Reader/Associate Professor. Reader: 3 years as Lecturer/Asstt. Professors. Lecturer: 3 years as Demonstrator/Tutor/Registrar/Resident out of which one year after P.G.

*All those candidates who have applied for any of these posts in response to earlier advertisement of the College appearing in November, 1989 and for which selection have not so far been held, need not apply again. However, they may intimate the College if they still wish to be considered, in which case they may, if required, update their Bio-data.

All posts carry usual allowances at the rates prescribed by the University from time to time.

The prescribed application form can be obtained from the office of the University College of Medical Sciences & G.T.B. Hospital, Shahdara, Delhi–110095, personally or on written request alongwith a self addressed envelope of size 28cm X 13cm with postage stamps worth Rs. 2/– The cost of one form for the teaching posts is Rs. 2/– which can be sent, if required, by post, by Indian Postal Order drawn in favour of the Principal, University College of Medical Sciences & G.T.B. Hospital, Shahdara, Delhi–110095.

Residential accommodation within the campus may be possible to certain extent depending upon the availability of the same.

PRINCIPAL

भारतीय कृषि अनुसंधान परिषद

कृषि भवन, नई दिल्ली-110001

कृषि साहित्य के लिए डॉ॰ राजेन्द्र प्रसाद पुरस्कार

1990 के लिए हिन्दी में कृषि विज्ञान (जिसमें पशु-विज्ञान और मत्स्य विज्ञान भी शामिल है) के सर्वश्रेष्ठ मौलिक तथा मानक ग्रन्थों के लिए डॉ॰ राजेन्द्र प्रसाद पुरस्कार।

प्रति वर्ष दिये जाने वाले डॉ॰ राजेन्द्र प्रसाद पुरस्कार-1990 के लिए अप्रैल, 1989 से मार्च, 1990 के बीच कृषि विज्ञान, पशु-विज्ञान तथा मत्स्य-विज्ञान संबंधी विषयों पर लिखी गयी मौलिक और मानक पाण्डुलिपियां या प्रकाशित ग्रन्थों की प्रविष्टियाँ आमंत्रित की जाती हैं। इस पुरस्कार के अन्तर्गत 10,000 रु॰, 5,000 रु॰ और 3,000 रु॰ मूल्य के क्रमशः प्रथम, द्वितीय और तृतीय तीन पुरस्कार होंगे जो प्रत्येक कैलेन्डर वर्ष में नकद या वस्तु या दोनों के रूप में दिए जायेंगे। एक से अधिक लेखकों द्वारा लिखी गयी पुस्तकों पर भी विचार किया जा सकता है। पुरस्कार के लिए प्रत्येक पुस्तक/पाण्डुलिपि की पाचं-पांच प्रतियां बंद करके और ऊपर "गोपनीय" लिखकर श्री सतिन्द्र सिंह, उपसचिव (प्रशासन), भारतीय कृषि अनुसंधान परिषद, कृषि भवन, नई दिल्ली-110001 के नाम भिजवाएं। प्रविष्टियों के साथ निर्धारित आवेदन-पत्र भी भेजने हैं, जो उक्त पते से मंगवाये जा सकते है। प्रविष्टियां भेजने की अंतिम तिथि, 20 सितम्बर, 1990 है। अण्डमान और निकोबार द्वीपसमूह, लक्षद्वीप, उत्तरपूर्वी क्षेत्र के राज्य और केन्द्र शासित प्रदेशों, जम्मू और कश्मीर राज्य का लद्दाख प्रभाग और सिक्किम के लिए अंतिम तिथि 5 अक्तूबर, 1990 है।

पुरस्कार संबंधी सभी मामलों में परिषद का निर्णय अंतिम होगा और इस संबंध में कोई पत्र-व्यवहार नहीं किया जायेगा।

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

JAWAHARLAL NEHRU AWARDS FOR OUTSTANDING POSTGRADUATE RESEARCH IN AGRICULTURE 1990

The Indian Council of Agricultural Research invites applications from post-graduate students who have obtained their Ph.D. degrees during the year 1989 in India in the fields of agriculture/animal sciences (including fisheries) and home science for "Jawaharial Nehru Award for Outstanding Post-graduate Research in Agriculture-1990" There will be ten prizes of Rs. 5,000/- each for outstanding research work of the following nature:

(i) which may have bearing on finding a solution to any important national problem in the field of agriculture/animal sciences, and/or

(ii) which is likely to have an impact on increasing the production or improving the quality of any important crop for human nutrition or animal productivity or increasing the technological efficiency of any process of economic importance connected with agriculture.

Candidates shall be required to submit the following documents through the Head of the Institute from where the thesis has been obtained:

(1) A copy of the thesis submitted by them for the award of the doctoral degree.

(2) A certificate from the guide of the candidate for Ph.D. degree stating the extent to which the work is the candidate's own contribution.

(3) 6 copies of the synopsis indicating precisely and in concise terms the work done by the candidate.

(4) 6 copies of the bio data with complete address for correspondence with telegraphic address, if possible.

The certificate awarded to the candidate for Ph.D. degree may also be sent. There is no prescribed proforma for applying for this award. Each candidate will be judged on the basis of the originality and the applied value of the investigations as revealed in the thesis submitted by him. In all matters relating to the award the decision of the Council shall be final and no correspondence on this account will be entertained.

Applications, with complete documents as mentioned above, addressed to Shri Satinder Singh, Deputy Secretary (A), ICAR, Krishi Bhavan, New Delhi-110001 should be sent so as to reach on or before **20th September, 1990.** Te last date for candidates in the Andaman and Nicobar Islands, Lakshadweep, States/Union Territory in the North Eastern Region, Ladakh Division of J&K State and Sikkim is **5th October, 1990.** The award winning thesis will be retained by the Council for record. In case the application is not accompanied by a copy of thesis and the required number of synopsis and bio-data, the application is liable to be rejected at the screening stage.

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

HARI OM ASHRAM TRUST AWARDS FOR THE YEAR 1990

Nominations are invited for the Hari Om Ashram Trust Awards for the year 1990. Three awards of the value of Rs. 10,000/- each in cash or kind or both are given every year for outstanding original research fundamental or applied work done in India, including inventions, discoveries etc. leading to results of practical value in any field or subject within the purview of research in agricultural sciences, forest farming and social forestry and animal sciences (including fisheries).

All scientists engaged in research in the fields of agriculture, forest farming and social forestry, animal husbandry and allied sciences in India shall be eligible for the awards. The results of research achieved/contributions made during the five years preceding the year of the award shall only be considered for the awards. In the case of claims based on evolution of new varieties/strains, the final trials should have been completed within five years preceding the year of award.

Nominations can be made amongst others by Vice-Chancellors of agricultural universities or other universities having faculty of agricultural or biological sciences. Directors of Research Institutes, including Principals of agricultural and veterinary colleges, Presidents of Scientific Societies, Academies and heads of the Principal Scientific establishments in the country.

Nominations for the awards should be supported by a statement of work, achievement accomplished or performed by the candidate who is being nominated and a reasoned justification or other supporting data.

The last date for receiving nominations for the awards is **20th September, 1990.** The last date for candidates in the Andaman and Nicobar Islands, Lakshdweep, States/Union Territory in the North Eastern Region, Ladakh Division of J&K States and Sikkim is **5th October, 1990.** Five copies of the nominations on the prescribed proforma for the award should be sent in a sealed cover marked 'Confidential' to Shri Satinder Singh, Deputy Secretary (A), Indian Council of Agricultural Research, Krishi Bhavan, New Delhi-110001. The copy of the proforma can be obtained from him by sending a self-addressed envelope of the size of 27 cm. × 12 cm. Applications/nominations received without five sets of reprints of publications are liable to be rejected at the scrutiny stage.

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MYSORE

Making the UGC More Effective

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Towards Socially Relevant Education

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Social Work Education and Practice

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Higher Education in Maharashtra

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Assistance for Scientific Meetings

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Master's Programme in Development Administration

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U.S.E.F.I.,
Flat 2, Park Mansions,
57 Park Street,
Calcutta 700 016.

The Regional Officer,
U.S.E.F.I.,
American Consulate Building,
Mount Road,
Madras 600 006.

Incomplete applications or applications which are not forwarded through the administrative head of the institution will not be considered.

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25 JUL 1990

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Editor :
SUTINDER SINGH

MAKING THE UGC MORE EFFECTIVE

R.N. Chaturvedi*

The UGC was brought into being with twin major objectives viz. (i) maintenance of academic standards, and (ii) the coordination of educational policies in the federal political system of our country where pressure of regional sentiments in the new context of independent India was likely to jeopardise the process of national integration which was of vital necessity in the wake of freedom. The constitutional position of the UGC in the area of higher education in our federal structure with three lists of subjects is not only ambiguous, but defies definition. The founding fathers of the constitution put education in the State list of the VII Schedule and which has now been shifted to the Concurrent list since 1976. Item 66 of this list charges the Union Government of India with the specific responsibility of maintaining and coordinating standards of higher education in the country. It further implied that the Union Government have powers to deal with the State Universities in matters of higher education also to fulfil its obligations with which it has been constitutionally charged. Beyond this the constitutional position of the Union Government vis-a-vis State Universities remains, by and large, unaffected by the shift of education from State list to concurrent list. The objectives of the maintenance of academic standards and coordination of policy measures are likely to be interpreted differently by the Central and State Governments from time to time. However, it is difficult to subject plans and programmes under these matrices to any criteria of quantitative measurement. Obviously they alone provide a valid though inadequate basis for evaluating performance of physical achievements and failures of the UGC. Naturally, therefore, the various measures, taken by the UGC to further these objects should constitute the scale to assess its potentialities and limitations also.

The working of the UGC is characterised with so much bureaucratic clap trap that appropriate follow-up action are lost in the routine. The obvious reason that strikes a UGC watcher is that it has not been able to evolve any effective mechanism to evaluate its programmes in the field, nor there exists a survelliance machinery to keep a close watch over various stages of the programmes during the phases of implementation. It is the absense of this effective mechanism which may be regarded as the fountain-head of failures and shortcomings of the UGC on several counts.

It is disquieting to note that even after thirty five years of its existence and growth the UGC stands as a very frail administrative structure too flexible and too weak to undertake the twin task which the Statute has assigned to it. If it has to work effectively it needs sea change in its composition and still more in its procedure of working.

Improvement in the structure and the working of the UGC requires a phased plan of action. Some short range and long term measures can directly and indirectly contribute to the attainment of the prime objective namely the maintenance and promotion of academic standards by the UGC. Some of the suggestions are being offered in the light of the findings of a recent study:

(i) The UGC is headed by a Chairman who is normally an academician of repute. Some chairmen like Dr. CD. Deshmukh combined academics with politics and that too with effectivity. The academician chairmen were effective to the extent of their stature and political respectability. Therefore, it seems worth while that the vice-chairmanship may be

(Continued on page 5)

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* *Assistant Registrar, University of Ajmer, Ajmer (Rajasthan).*

Towards Socially Relevant Education

K. Venkata Reddy*

Education is well-recognised as a development input which can serve as an instrument of social change and economic development. Despite the Indian society presenting a rapidly changing scenario, socio-economic backwardness still remains unredeemed. It is only Education, oriented towards productivity, rather than mere literacy or academic education that can help combat social and economic backwardness. The need of the hour is, therefore, to overhaul education so as to ensure the right type of education on a wider scale relevant for all sections of the society.

During the last four decades, there has been significant growth at all levels of education, particularly higher education. In 1947, there were only 18 Universities and 300 Colleges with about 1.06 lakh students on rolls. At present, we have more than 160 Universities and over 6000 Colleges with about 38.00 lakh students on rolls. Further, the expansion in the field of higher education has been many-sided. There has been significant growth in postgraduate education with nearly 4.00 lakh students in different postgraduate courses. India produces annually about 2750 Ph.Ds in Arts and Humanities and about 3700 in Sciences. Higher Education is now thrown open to all sections of the society with increased scholarship facilities covering not only SC, ST and BC candidates but also economically poor category of students. The expenditure on education has increased from Rs. 55 crores in 1947 to about Rs. 6000 crores at present. In Andhra Pradesh, during the last three decades, the number of undergraduate Colleges rose from 47 in 1956 to 365 in 1988 and student enrolment at the undergraduate level rose from 27,200 to about 3,19,000. At present the Government of Andhra Pradesh spends annually more than Rs. 500 crores on education, and on higher education alone it spends about Rs. 200 crores. Education receives nearly 30% of the total state expenditure.

But disappointingly, education in India so far has not proved to be an effective instrument of the desired social and economic objectives envisaged by the constitution makers and the policy planners. The training received from the general universities has, no doubt, helped a few to get into the administrative service. But a vast majority of students come out of the institutions of higher learning with training quite unrelated to jobs they seek and do. The number of educated unemployed is on the increase; there is large scale disguised unemployment. The student unrest in university campuses is rampant. There is no effective accountability of educational institutions and teachers. Most of the students in general universities have no clear goal before them; nor the institutions themselves are very clear about the openings for their products. There is no provision in the curriculum for moral values and character-building. Education becomes socially relevant if it is capable of helping the learners develop right attitudes, values and behaviour apart from developing skills of different types.

Apart from heavy public expenditure, higher education in the general universities is landing some parents in heavy debts. The money diverted and spent on higher education by the parents results in denying the farm the minimum investment and this has its adverse effects. The education system as a whole is under severe criticism from almost all quarters, including the ruling as well as opposition political parties and the general public at large. Paradoxically enough, teachers themselves are critical of the system in which they function and for the perpetuation of which they are equally responsible.

There is a fund of useful information available from the views of Mahatma Gandhi and other social reformers and from the reports of several expert committees/commissions. However, so far only piecemeal efforts have been made to implement the views of the well informed persons and the pragmatic recommendations of the expert committees. Universities in India have to necessarily ensure that they reflect and respond to the life of changing rural societies around them. The system of "Basic Education" advocated by Mahatma Gandhi is quite relevant even in the present day situation. The fundamentals of basic education as given by Mahatma Gandhi, among others, are — (1) Education to be true must be self-supporting where it will pay for itself. (2) The hands of the pupils must be working skillfully at some industry for some period during the day, and (3) Classroom instruction must be linked with some basic craft so that the student is in a position to translate theoretical knowledge into practical one. In short, Gandhi wanted that students should acquire certain skills with which they can be self-reliant and self-supporting. The Kothari Commission recommended the introduction of work experience as an integral element of general education. The Commission recommended linkage between education and industry. Education for industry will have to be developed further with emphasis on close and intimate contact with the industries concerned. For the development of research and the training of technicians, the Commission rightly stressed the need for strengthening science education at all stages and relating it to the development of technology. The Commission further felt that with intensive utilisation of available facilities by way of increasing the number of working days, lengthening the duration of the working day, better planning of instructional programmes and creating a climate of dedicated and sustained hard work in all educational institutions, better results could be obtained.

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The need to link education and development is well outlined by different expert committees. A meaningful and workable linkage between the two must start at the plus two stage. It is necessary that the syllabus at different levels needs to be modernised in tune with the knowledge explosion happening today. While revising the syllabus, the requirements of different Institutions, industries and organisations must be taken into account. So far in India, there is no direct planned linkage between education and development programmes. The manpower requirements in different areas of development must be properly assessed and accordingly curriculum reform must be brought about. Towards this end, the general universities must advance, since their products are gradually and on a large scale becoming not only unemployed but also unemployable.

Admissions to postgraduate courses need to be restricted. The opening of new Degree Colleges should be limited. Instead polytechnics can be started in rural and semi-urban areas to impart training in areas which are directly relevant to the development needs. With new industrial establishments coming up in semi-urban areas and modernisation of farming, there is a dearth of skilled labour in rural areas. Technical institutes, and not Degree Colleges with their traditional pattern of education, suit the purposes of a rapidly rising industrial civilization which requires technically skilled work force.

Education and development ougth to be visualized as intrinsically linked, mutually non-exclusive entities. Education as an instrument of social change should respond to the felt needs of the community as well as shape societal outlook. It has been clearly emphasized that the main focus of development is on the individual as much as on the collective development of the people. The dynamics of development involve the realization and the unfolding of man's true potential. Education must help people become aware of their ability to realise their potential and use it as a resource for development. Another aspect of the development of the people is to help them acquire new skills, both work skills and social or human skills. Udai Pareek is of the opinion that human skills include "skills of collaboration, communication, group work, confrontation, collective action, positive assertion, empathy, helping skill, organising of groups etc." To this may also be added the traditional human qualities such as patience, tolerance, and consideration for others without encouraging sloth, complacency and apathy. These skills are found to be as important as, if not more, than technical or work skills. The work skills would include different skills needed to work on new projects, vocational skills in the field of agriculture, animal husbandry etc. Work skills can be easily identified and appropriate training and education programmes prepared for the acquisition of these skills. But the acquisition of work skills without a curriculum design aimed at the promotion of social skills would be an ethically improper planning of priorities. Since development aimed at through education is harmonious of allround development of the individual as well as the society, work skills cannot be viewed in isolation from social skills. In this task, the general universities are perhaps the appropriate bodies for the dissemination of this two-fold knowledge. While the acquisition of the work as well as social skills is an important aspect of education, meaningful linkage between education and development can be brought about if work experience or field work is made a compulsory component of the curriculum and evaluation. Discipline-wise work experience facilitating the acquisition of work skills may be easily identified as indicated below:

DISCIPLINE	WORK EXPERIENCE
I-Sciences	
Physics	Laser Beam, Solar Technique, Analytical Techniques. TV, Radio mechanism, characterisation of materials, computer hardware, Biophysical techniques, Flaw Detection using Ultrasonics, Electrical wiring, Photography and Photo processing.
Chemistry	Analysis of quality control of finished products, Paper technology, Sugar technology, water analysis. Making of soaps

	and detergent powder, Tooth Powder, Printing and writing inks, Dyes and paints, distilled water, drugs and pesticides on a small scale, Pollution control measures in industrial establishments.
Geology/Geography	Soil-testing Water-testing Resource Surveys.
Botany/Agriculture	Crop Demonstration units Orchards Seed processing.
Zoology/Veterinary	Poultry, Dairy, Piggery, Fishery, Leather Tanning.
Applied Biology	Pathological and clinical testing.
Home Science	Food preservation, Ready-made foods, powders and pickles, Biscuits, Bakery, confectionery, Kitchen-gardening.
Mathematics/ Statistics.	Astronomical observations, Statistical analysis and projections. Computer aided techniques for statistical and commercial computation, computer graphics.
Applied Mathematics	Chemical Engineering, Petroleum Engineering, Problems relating to Oil and Natural Gas Industry, Naval Architecture.
II-Social Sciences	
Economics/ Rural Development	Socio-economic surveys, Project evaluation, preparation of case studies, observation of consumer, labour etc. behaviour, supply and demand analysis. Risk and uncertainty coverage.
Commerce	Accounting at colleges, hostels and cooperative societies, practical banking work in local banks.
Sociology & Social Work.	Family and kinship relationships, conflicts reconciliation process, Descriptions of social dynamics, Study of group formation and functioning.
Political Science & Public Administration.	Electoral behaviour–study of election propaganda and election analysis and evaluation of election as a democratic process.
III-Languages	Journalism, Press-composing.
For Women students	Computer graphics for fabric designing and other decorative purposes. Fabric painting, knitting and embroidery, Beautician's job & training, interior decoration, etc.

With the financial assistance made available by the UGC towards scientific equipment, the required technical equipment can be secured by different universities/colleges. Theory pertaining to the technology of the above-mentioned work experience may be taught in the forenoon and the afternoon may be devoted to on-hand experience, so that the theory is immediately translated into practice. In so doing, there is a possibility of the student being fully engaged outside the classroom in the cultivation and putting to use of the skills he has learned. This would ensure proper occupation of the student's mind so that he may remain undiverted from the purpose for which he came to the portals of learning. This type of linkage would inculcate in the students dignity of labour and tap their hidden potentiality for constructive thinking. With such type of training, educational institutions will provide an opportunity to the students to acquire certain skills which should be useful for them for self-employment. Further, this type of arrangement would facilitate the implementation of the scheme of "earn while you learn".

There is an unhealthy tendency now on the part of students to expect financial support from the State for their education. This has resulted in almost total subsidization of education which has certain adverse effects. The Ramakrishna Rao Committee on the Institute for Professional Studies rightly observes that "high subsidy in a sense acts as disincentive for becoming self-reliant, kills personal initiative and conditions the students to a state of dependence. Achievement motivation, so essential for entrepreneural success cannot be promoted in an environment of highly subsidised higher education".

No doubt, economically and socially handicapped students need to be adequately supported. There is a more meaningful way of supporting the needy. The Government may take necessary steps to provide educational loans on a wider scale to all the deserving candidates. The loan amount may be recovered in easy instalments from the salaries or earnings when these students settle down in life. Through a differential rate of interest system, the interests of the weaker sections can be taken care of. Such an arrangement would certainly make the students more responsible and more serious about their studies and early settlement in life.

The Boards of Studies of different disciplines must necessarily involve the practitioners in different fields such as industrialists, bankers, life insurance personnel, agricultural scientists, family planning experts and various other technical personnel.

The future of this great country is tied up with the leadership that will be displayed by thousands of students now attending colleges/universities. More than anybody else the educators have to take a heavy responsibility for providing the right type of training and education. No nation has ever become great with an inferior system of education and no nation with a socially relevant system of education promoting achievement motivation has failed to become strong. A teacher with his/her teaching competence and skill, innovative ideas, integrity, sense of purpose and direction, energy and enthusiasm, decisiveness, friendliness and affection, faith and commitment to the job before him/her can certainly unearth the hidden potentialities in the students and help them acquire both work skills and social skills. Social change and economic development emanate from the individual who is the catalytic starting point. By bringing about change in what they do, people move societies in new directions, towards "fresh woods and pastures new". Let all those concerned with education, particularly the teachers, put in "critical minimum effort", for achieving a thorough overhaul of the present static and stagnant education system. Then only can education be made more socially relevant and purposeful. □

Making UGC More Effective

(Continued from page 1)

given to an academician, the chairmanship should normally go to a member of parliament preferably that of the Rajya Sabha. As the UGC functions pertain to the domain of policy making, the academician parliamentarian will prove to be a better choice. But to counteract the pernicious effects of the party politics the chairman should be supported and surrounded by the galaxy of academicians as Vice-chairman and members of the UGC.

(ii) To make the composition of the UGC meaningful and purpose oriented it will be in the fitness of things that six members are made whole time members and the remaining six may be made part-time members from the Universities or other walks of lfe for a fixed term. The whole time members excluding the chairman and the vice-chairman may be given charge of specific areas and thus each one of them may look after one of the following areas:

(a) Educational Planning,
(b) Advanced Research,
(c) Evaluation,
(d) Examination Reforms.

These members should devote their full time energies to these areas of UGC work and bring effectivity and coordination leading to excellence.

(iii) The work of the UGC has been growing and expanding in quality as well as in quantity. Although it is controversial but the results of a recent study lead us to believe that a federal structure of UGC will be more commensurate with its new role in higher education in India. It is not easy to administer UGC plans and programmes on the university campuses which again are extra-jealous of their autonomy. The monolithic structure of the UGC will not be acceptable to the universities and a weak structure as of today can not deliver the goods. Hence the UGC might have five zonal structures in north, south, east, west and centre of the country and their regional offices may function under the supervision of a whole time member located in New Delhi.

Consequent upon these major changes in the structure the infrastructure of the UGC will also change a good deal. A long list of committee which have almost become a part of the structure will become defunct or their role will be taken by the regional offices. The decentralised structure shall be conducive to academic autonomy and effective implementation of the policies. But the centralised structure will continue to control the entire operation in the interest of coordination and academic excellence.

Social Work Education and Practice for 21st Century

D.V.P. Raja*

Five decades have passed since the introduction of educational programme for professional social work. While our society has undergone remarkable changes for the better in the last five decades, especially after independence, the essential thrust areas of concern for the development of social work education have remained stalled. As social work profession over the years has been accepted as an independent profession, the demand for social work education has also increased. Between the beginning of the thirties and the end of the eighties. 50 social work institutions were established in India. The structure of these institutions for social work education have undergone a substantial change. But the question is whether a systematic approach, as in the case of other disciplines, was adopted in the academic levels of social work programme. What is evident in the levels of social work educations is a structural deficiency which has to be set right. Social Work is an integrated discipline which has an in-built system consisting of core courses, methods and procedures, special areas of education. While compared with other disciplines such as economics, sociology, psychology, political science, social work is unique inasmuch as it has a rich heritage, a modern outlook and a sound body of knowledge and skills. What should be the emphasis in social work education and practice today and how should our perceptual aims of social work education to provide training to students be realised? Many critical points have been raised. Firstly, students should be trained towards aggressive social work, i.e. towards social change or reform, which would mean equipping them with skills to analyse issues and problems that arise due to poverty, inequality and exploitation. Secondly, the main aim of social work education is to equip students to gain employment in voluntary organisations and train them to be 'hirelings' because students take up this course with the aim of securing a living and not with the aim of eradicating and removal of poverty and injustice. The reason being these problems can be tackled by the collaborative efforts of all and not by social workers alone. Thirdly, social work education should concentrate in sensitizing students to poverty and deprivation, visible and real all round us.

Challenges for Social Work Education

The biggest challenge facing social work education is the need to reorganise, modify and strengthen the curriculum to respond to social realities. The Social Work curriculum needs to be changed in order to equip students with competence to deal with the clients' environment. The report of the UGC second review committee on social work education has observed "Change is required therefore, at the institutional, country and personal levels in terms of the re-distribution of resources, as well as in attitudes, values and behaviour related to self and to the society in which the individual has both rights and responsibilities." These, then, are the constraints towards which social work must design a responsive curriculum which has relevance for the type of manpower required. While these are the larger problems at the national level, regional variations should be taken into account in developing such curricula. Further, the committee states that a majority of our curricula show emphasis on social and individual problems of the few rather than on the masses in our society. Similarly, the curricula are more urban than rural oriented. They are the largely at the Master's degree level, very few are at the bachelor level, and there are only four programmes below bachelor's level—all in urban settings. These curricula thus do not reflect our country's major needs for which personnel are required and they do not train at the levels at which a large bulk of the workers should actually be functioning. A few syllabi showed movement away from this model, but they were the exception rather than the rule and such changes had taken place as late as in the seventies.

In the light of the observations of the review committee, it is indeed disappointing to note that social work education has not responded as quickly as it should have in making curriculum changes in training student social workers to be more competent to tackle myriad social, cultural and economic dimensions of social problems of illiteracy, ill health, malnourishment, inadequate housing, unemployment, social alienation and anomie. Social work profession is still in search of identity and recognition in India.

Preparing Competent Social Workers for 21st Century

In keeping up with its historical tradition social work

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profession continues to be charged with the formidable task of assisting fellow citizens to ameliorate relationships and uncertaintities within their environment (P.R. Balagopal, 1989). In fact, preparing competent social workers for 21st century poses a major challenge to social work training institutions in our country. There is a dire necessity for improving the dimensions of curriculum development in social work education, namely (a) attitude; (b) knowledge; and (c) skills.

Values are of utmost importance in social work profession which help student social workers to be sensitive to the social realities and to address themselves to the needs and problems of the individual at the micro and macro levels. Social work education has borrowed various concepts and the methodology from behavioural sciences. "What is needed is to consolidate the borrowed knowledge and have confidence and conviction in implementing theories which we ourselves have to develop". Indigenous theories and methodologies are required to be incorporated in social work curriculum. The curriculum must be geared to answer the questions: how can schools of social work in India prepare students in a way that will help them lay the ground work for creative and skillful practice with differential clients and contexts? What sort of learning is to be provided to the students in the classroom and field settings? Whether the Schools of Social Work have made any strides in developing indigenous theories and methods?

Impact of Training Orientation

Dr. Vasoo has observed that social work curriculum has over the years mainly concentrated on efforts to enhance interpersonal practice skills which are rather client centered in perspective. This should change so that social workers are better oriented not only for front-line but also middle management responsibilities in human service delivery systems. The feeling of lack of efficiency in managing the organisational system and environment seems to be associated to middle level management bind faced by social workers (Perl Mutter, 1982). Social work educational institutions should also provide training in the management of social services. Another issue is that social work curriculum tends to prepare social workers to be good in client management than to be good in people and organization management. Training encompassing preventive and developmental approach will be more effective in people and organization management rather than the traditional psychodynamic approach. Social Work curriculum has to equip students with the skills to use information technology in decision making. Unfortunately, social work institutions do not focus much on the skills in the mobilisation, use, and control of external resources. Our training should sharpen the skills of student social worker, broaden the organisational base and strengthen the network of relationships relevant to the improvement of social service delivery. Further, students should be provided with skills to analyse the cost effectiveness of the services, if they would wish to take up middle level positions in social welfare agencies.

Competency Based Social Work Education

An analysis of the social work curriculum in India reveals that it is developed on the basis of either remedial or clinical model. It is not geared to adopt a developmental model. While clinical model focuses primarily on the use of social work intervention at macro and micro level, the developmental model is concerned with bringing about systems changes through social work intervention at the macro level. Designing separate courses in social work with specific objectives on the basis of either clinical or developmental model seems to be the only way of solving in-built problems in social work education in our country. Development of separate courses on social policy in the schools of social work in Canada, USA, UK and New Zealand is reflective of the new trend. But it has been realised by the Schools of Social Work in India that both clinical and developmental models could be combined for all students. If we have to combine these models and provide a broad based social work education, we have to take into consideration the existing resources in terms of time, faculty position, quality of field instructors, library facilities, current teaching methodologies, field work experience, etc., M.S. Gore (1981) has observed, 'If we really want to take on broad social developmental tasks as part of our professional responsibilities; our curricular content in social science will have to be wider and deeper, our knowledge in the areas of developmental economics, organisational behaviour and the analysis of social systems will have to be extended at least to the extent to which we emphasize the understanding of human motivation, psychological processes and abnormal psychology in preparing psychiatric social workers. Is this a realistic goal for our schools? Can this be attempted in a two year programme of instruction where we admit students even without any lease in social sciences'. The questions that arise are how to enhance the professional status of social work? Whether the micro to macro continuum in social work education will create any problems among the educators and the learners?

Social Work Education Teacher Development

While reviewing the social work curriculum in India, the curriculum development centre of Tata Institute of Social Sciences, has put forth a few important suggestions for teacher development, which are as follows :

1. Encouraging candidates design a career in social work education to avail of the opportunities of higher

education—Ph.D.,/M.Phil., programmes in social work and to increase competence for their role.

2. Inservice programmes for teachers may be arranged to provide a plan to 'build on own experiences' which include (a) Developing team action research projects by a group of teachers who can develop competencies to research, write and prepare reading materials for knowledge and practice of social work; (b) arranging national and regional conferences and seminars, short term 'extension education programmes' for teachers; and (c) conducting refresher courses on a regular basis for teachers. Teacher development programmes should focus on developing professional competencies in the teacher's role as an expert in the classroom for social work practice and research guidance. Any programmes organised for teachers should be "learner centered" and growth oriented. Social Work training institutions should provide ample opportunities to the teachers not only to develop competencies in them but also to be sensitive to the needs of the learners in the classroom.

Social Work Practice

The organisation of field work in social work has to be redesigned to provide a variety of opportunities to develop and enhance skills and prepare student trainees to be capable of handling varied social issues at the macro level. In addition to the regular visits, structured experience laboratory, rural camps, study tours, field work workshops will really provide rich experience to the students.

Infrastructure of Social Work Training Institutions

There is a great need for improving the organizational structure of social work education in our country. A good number of institutions do not have the means to expand the physical structure. Whereas independent schools of social work have the freedom to make improvements in organisational and administrative aspects of social work education, it is rather disquieting to note that many departments of social work attached to colleges or universities are unable to grow as they are considered on par with any other department. They have to act within the rigid framework and as a result the departments of social work cannot act independently. Efforts have to be initiated by the Schools of Social Work/Departments of Social Work to gain autonomous status.

Following suggestions are offered for improving the organisational structure of social work institutions :

1. Appointment of adequate staff in each department/school in line with the norms laid down by the University Grants Commission;

2. Establishing a Department of Women Studies, which can take up research studies, training programmes etc.,

3. Setting up a field work department which can undertake field visits, field laboratory, rural camps, study tours and field work training workshops;

4. Every institution should be equipped with a vehicle for the purpose of field work extension activities;

5. Every institution should have adequate building for classrooms, library, faculty, extension services, administrative offices, and community centre.

6. A Research Cell has to be established in every institution which can provide consultancy services in social work research and conduct research studies.

7. A development cell may be set up to assist voluntary organisations.

Continuing Education and Extension Facilities

It is noticed that closed shop atmosphere is prevailing in social work institutions in our country. Malcolm Adisheshiah has observed, "The skills of the social work professionals are needed not only for the rural poor who constitute the majority in the country, the skills are needed in schools, colleges, and universities in discharge of their community and national service obligations." We have to think about providing part-time training in social work for first and second degree courses in social work, so that professionals employed in other areas might be equipped with the conceptual frames and methodological tools of social work. Para-professional training in social work will have to be provided to village and town level service professionals. Part-time or Diploma type education may have to be designed.

New Dimensions in Social Work Education

Schools of Social Work in India which are forging towards 21st century will have to concentrate more on improving academic levels, consultancy services, research, and extension training in social work.

Academic Levels	**Extension Training**	**Consultancy Services**
Higher Secondary (10+2) Level Para Professional training at higher secondary level in schools should be introduced extensively in all states.	1. Providing training in social work—part-time for para professionals 2. Conducting part time Diploma course in social work at the graduate level.	
Bachelor's level There is need to provide	3. Correspondence course	

social work training to students at the undergraduate level. Provision of knowledge in social/behavioural sciences should become the basis at this level.	in basic social work education.
Master's level Social work training at this level should focus only on specialisation in methods and fields of social work.	4. Extension training facilities to village level workers, social welfare functionaries, and urban development workers.
M. Phil/Post Master's Certificate Method oriented courses in social work.	
Ph.D. Candidates should be encouraged to conduct studies in social work and their studies should be related to social work.	

National Council for Social Work Education

The University Grants Commission has recommended the setting up of a National Council for Social Work Education in the country. A National Council will certainly help develop the prospects of our social work education. There is need for promoting coordination among Association of Schools of Social Work in India, Indian Association of Trained Social Workers, Schools of Social Work and national bodies such as Department of Social Welfare, National Institute of Public Cooperation and Child Development, National Institute of Rural Development, National Institute of Social Defence, University Grants Commission and Planning Commission. The council has major role to upgrade social work education, maintain standards, and to make national use of manpower and resources. The National Council of Social Work Education will go a long way not only in gaining professional recognition but also provide more opportunities to schools of social work to develop human resources for nation building tasks. It is hoped that the Council will blossom at least by the turn of the 21st Century.

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3. Social Work Education: India (Undergraduate and Post-graduate) (1988). A Report prepared by Curriculum Development Centre, TISS, Bombay.
4. Report of the Second Review Committee—UGC (1980) *Review of Social Work Education in India: Retrospect and Prospect.*

INDIAN COUNCIL FOR CULTURAL RELATIONS

1990 MAULANA AZAD ESSAY COMPETITION

Subject : "Philosophy of Humanism as expressed in the Holy Quran"
Date : Submission by 31st August, 1990
Prizes : First Prize Rs. 10,000/- in each language
: Second Prize Rs. 5,000/- in each language
Eligibility : All citizens of SAARC Countries viz.
India, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka, below 30 years as on 31st August, 1990.

Language : English, Hindi or Urdu (Only one entry per person)

Code of Procedure available with the Indian Council for Cultural Relations, Azad Bhavan, I.P. Estate, New Delhi-110002

HIGHER EDUCATION IN MAHARASHTRA

Dr. S.V. Sohoni, Vice-Chancellor, Tilak Maharashtra Vidyapeeth, delivered the Convocation Address at the annual convocation of the Vidyapeeth. In his address, Dr. Sohoni traced the genesis, growth and development of the Tilak Maharashtra Vidyapeeth and delineated the higher education scenario of Maharashtra. Excerpts

Convocation

The great and noble figure, Lokmanya Tilak had, repeatedly, stressed the importance of nationalistic education. Subsequent to his passing away on the 1st of August, 1920, some of his contemporaries decided to establish an educational institute in his memory. Accordingly, Tilak Maharashtra Vidyapeeth (TMV) was founded on the 6th of May, 1921. It will be completing seventy years on the 6th of May, 1991. This period may not be considered as of a long duration in the history of an educational institution. The Vidyapeeth had to face many problems, initially, due to severe opposition from the British rule. However, the devoted efforts of the loyal and devoted staff members helped it retain its existence.

It is increasingly becoming clear that adequate funds are required if university level institution has to conduct its activities.

Only recently, (vide the resolution dated 14 April, 1987) the Vidyapeeth has been granted recognition from the Government of India and given the status of a 'Deemed University' under the UGC Act. Subsequently, a committee was appointed vide the resolution dated 11th October, 1988 by the Government of Maharashtra to recommend the procedure for releasing funds to the Vidyapeeth. It is understood that the report of the committee has reached the State Government. The directions of the Government are awaited.

It will be appropriate to take a brief review, of the significant work done by the Vidyapeeth last year. The following projects have been recently launched by the Vidyapeeth:

(1) "B.Ed. by Correspondence" under the Distance Education Board from the forthcoming academic year 1990-91.

(2) A correspondence course in Sanskrit Visharad (B.A.) under the Distance Education Board.

(3) A Teacher Development Programme.

(4) A short-term course in the 'Scripts of Indian Languages' which would prove vitally important in promoting the national integration.

(5) A degree course, 'Visharad (B.A.) Social Sciences', is conducted, by correspondence, in the Mukta Vidya Kendra of the Vidyapeeth. A similar course will be made available at our Institute of Social Sciences for regular students, from the current academic year.

(6) A modern public administration attempts to achieve the economic and social upliftment of the people especially, at the grassroot level, through legislation. An important aspect of this attempt is to furnish and acquire the relevant essential education. A new course designed on these principles has been proposed to be started, next month. The UGC approval for the course is expected as the Curriculum Development Centre of the Commission itself has stimulated thinking in this direction.

(7) The great poet (Vishwa-kavi) Kalidasa is recognised as "Kavi Kulaguru". His classic works have made India proud of its culture. His close association with Maharashtra is undisputed. Hence the Vidyapeeth has initiated, since last year, the celebration of the yearly 'Kalidasa Mahotsava' on the first day of Aashadh. It has already received very good response, last year.

As the name of the Vidyapeeth includes the word, 'Maharashtra' as a geographic entity, it is worthwhile to know the progress of Maharashtra in the field of education at the university level. Out of the 517 Arts, Science and Commerce Colleges in Maharashtra, 221 conduct degree level courses in Science subjects and 149 in other fields of education. In all 8,50,000 students are enrolled, 2,18,909 (25.72%) of which belong to the backward classes. Out of approximately, 34,000 teachers, 5,163

(15.18%) come from the backward section. The related statistics are asunder:

Year	No. of Institutions	No. of students (registered) In thousand	No. of Teachers in thousand	Teacher Student ratio
1979-80	404	466	18	1 : 26
1980-81	407	492	18	1 : 27
1981-82	410	526	20	1 : 26
1982-83	415	571	20	1 : 29
1983-84	463	605	21	1 : 29
1984-85	513	664	23	1 : 29
1985-86	517	737	24	1 : 31

i.e. every year forty or more colleges are opened in Maharashtra. This number is significantly greater proportionately, than that in any other State in India.

The student population enrolled in various faculties in different Universities in Maharashtra is thus:

Faculty	Total Registration	Percentage
Junior Colleges—		
Arts	116234	14.34304
Commerce	88246	10.88937
Science	159582	19.69209
Senior Colleges—		
Arts	112158	13.84007
Commerce	62062	7.658325
Science	193596	23.88935
Law	23742	2.929714
B.Ed.	10628	1.311473
D.Ed.	25320	3.124436
Professional colleges	18818	2.322103
Total	**810386**	**100.00000**

These statistics clearly highlight the increasing level of unemployment in Maharashtra.

The statistics related to girl students at the university level in Maharashtra are asunder:

Year	Arts	Science	Commerce	Percentage
1977.78	38	23	20	29
1982-83	45	25	27	32

It can be observed that the girl students have a tendency to join the Arts and Commerce courses.

The present situation of education at the university level in different regions in Maharashtra is as follows:

Region	Percentage of the rise in institutions from 1960-61 to 1980-81	No. of institutions in 1980-81
Western Maharashtra	223.9	447
Vidarbha	302.2	185
Marathwada	365.2	107

The urban area provides greater opportunity for higher education than the rural area. It will be interesting to note that the number of Arts, Science and Commerce colleges in Bombay and Greater Bombay is significantly greater than that in other regions.

Regions	Per 1000
Greater Bombay	17
Western Maharashtra	9
Marathwada	5
Vidarbha	6

In this context, a salient feature of the present situation should be borne in mind. Although the financial assistance provided by the Government has increased slightly, it is utilized primarily for meeting the administrative expenses.

This background should not be overlooked while considering the expansion plans of this university. Since the objectives of education are multiple, the scope of the work to be done for the fulfilment of these objectives is unlimited. It will never be fully exhausted. Hence, even though a large number of institutions at the university level work together there is no danger of unfair competition to prevail.

Dr. S.V. Sohoni delivering the convocation address

RESTRUCTURING UGC

A study team from the Administrative Staff College of India (ASCI), Hyderabad is reported to have recommended that the University Grants Commission (UGC), with the central office at New Delhi, must set up four or more regional offices.

The UGC had sponsored the study as it wanted to take close look at the working of its Secretariat and also the composition of the Commission itself. The ASCI was requested to study the UGC working in the context of the important role it had to play vis-a-vis the development of higher education in the country. The four major aspects of the study were in relation to: (a) reorganisation of the administrative structure of the UGC secretariat "so as to gear the system to speed and efficiency," (b) develop manpower planning system, (c) suggest modifications in the appraisal system, and (d) improve the internal procedures within the UGC.

Later the UGC requested the ASCI to study its composition and make suggestions in the light of the various committees and commissions of the Government.

According to an interim report, these regional offices should have the authority to disburse all grants, within certain limits, to universities and colleges. The central office will alone sanction various schemes and proposals.

The recommendations, inter alia, are: The regional offices will be headed by co-ordinators who come third from the top in the hierarchy (with new designations) namely, (i) Member-Secretary, (ii) Dean of Financial Adviser, (iii) Coordinator or Director, (iv) Senior Education Officer or Senior Personnel Officer or Senior Finance Officer, (v) Education Research or Science or Finance Officer. These designations have been suggested to focus on and reflect the academic nature of the work and to match qualifications with type of work.

The study has also suggested an increase in (a) the number of members from the present 12 to 16, and (b) the number of whole time members from two to three with the Secretary of the UGC being appointed as a whole time Member-Secretary. Similarly, the president of the Association of Indian Universities (AIU) and Secretary, Planning Commission, may also be appointed as ex-officio members. Specific academic role is also provided for the vice-chairman in the recommended set-up.

It has also been recommended that the vice-chairman should be given a specific task and responsibility in the new set-up—he will head the academic innovation and planning division, which is to "look into the future direction that the UGC may take, evolve norms and standards of academic and intellectual work to be assigned or expected of the universities, and evolve standards of examination and educational testing among other function."

Professors in universities or deans will be associated with this unit. The vice-chairman will also head the Education Review Office in reviewing academics and monitor the implementation of schemes. Special schemes to include areas such as mass communication, computer and information set-up, science, international cooperation, centre for policy and planning, parliamentary questions among others will be under the deans.

The universities are to be divided into four geographical areas on the basis of regionalisation. Central universities for their maintenance grants will be dealt with separately. For the Delhi colleges, maintenance grants may be given to the Delhi administration, the interim report has suggested.

Coordination committees at various levels have also been suggested in order to eliminate "bottlenecks, ambiguity in interpretation of policy and to strengthen inter-section interface." The basic work should originate at the level of the education officer unlike now at the UDC or Assistant or Section Officer levels. A system for reviewing proposals before final decisions are taken has also been provided.

Punjabi University Plans New Courses

The Punjabi University, Patiala proposes to start a regular M.Sc. course in sports science and M.A. course in religious studies through correspondence from the next academic session. According to Dr H.K. Manmohan Singh, Vice-Chancellor, the University has resolved to establish Dr. Ambedkar Chair and upgrade the diploma course in Pollution Control and Management to Master's Course in Environmental Techniques and Management from the 1990-91 session. The University will also start new courses in its affiliated colleges like M.Ch. in paediatric surgery at Government Medical College, Patiala; Home Science course in B.A.-I at S.D. Kanya Mahavidyalaya, Mansa from the next academic session. The subject of folk art and culture will be introduced at the B.A. level from the 1991-92 session. German, French and Russian languages will be introduced as elective subjects at B.A. level.

We Congratulate...

Prof. S.K. Khanna, Secretary, UGC, who has been appointed Vice-Chairman of the UGC.

News from Agril. Varsities

Biotechnology Endowment Lecture at TNAU

Dr. S. Ramachandran, Secretary, Dept. of Biotechnology, Govt. of India, inaugurated the endowment for M.Sc. biotechnology programme instituted by SPIC Science Foundation and Madras Fertilizers Ltd. at TNAU, Coimbatore and delivered the first endowment lecture recently.

In his inaugural address Dr. Ramachandran focussed the importance of biotechnological approaches in day to day activities and the need for interaction and communication for mutual benefit to the consumer and producer between the Industry and Educational Institutions. He congratulated the two organisations for instituting the endowment for the benefit of the students and teachers. Such occasions provide opportunities for exchange of views, ideas and expertise. Interaction between science and industry give tremendous benefit in India in many fields of scientific endeavours.

According to him, the significance of endowment lectures are to share new ideas and for overcoming the constraints to achieve the goals in increasing the food production to meet the demand of increasing population. In this context the role of biotechnology is significant but it is not to replace our conventional approaches. Every technique has to be evaluated based on its use and its application in productivity research and development. He felt that giving subsidy for application of fertilizers etc. might not solve the problem. Indiscriminate and wasteful usage of water should be avoided so that the available water resources could be used to maximise the food production. He highlighted the achievements made in crop production and productivity, through the judicious use of land, water and improved technologies like improved varieties and management practices.

Tissue culture techniques have been commercially exploited for mass multiplication of banana, cardamum and many ornamental plants by the private companies. He focussed on the requirement of foodgrains, oilseeds, pulses, vegetables etc. for the increasing population in 2000 A.D. To achieve the additional demand in rice, molecular approaches like RFLP, wide hybridization and introduction of novel genes into the cultivars had to be used to increase the yield potential of the varieties suited to varied agroclimatic zones. He said that in order to preserve the gene banks of many crops, both *insitu* and *ex-situ* conservation were necessary for utilizing them in crop improvement programmes.

The modern techniques of science and technology should be utilized through quality education and extension methods to meet the challenges facing the scientists in increasing agricultural production. The biotechnology district concept has to be introduced for harnessing the benefits of research to the producer and consumer, he concluded.

Dr. S. Jayaraj, Vice-Chancellor, Tamil Nadu Agricultural University (TNAU) in his presidential address thanked the Department of Biotechnology, Govt. of India for supporting many universities and institutions for manpower development and for product and pattern development in the emerging field of biotechnology. He also thanked the SPIC Science Foundation and Madras Fertilizers Ltd. for their generous help in instituting the endowment for the benefit of students, and scientists working in the University to widen their knowledge and expertise to cope up with needs of the industries and academic institutions. He stressed the need for intensive research and its large scale application and its exploitation.

Dr. Joseph Thomas, Deputy Vice President, SPIC Science Foundation stressed the need for close collaboration between industry and academic institutions as in Japan to solve many problems associated with biotechnology research and development so that the final product could reach the common man quickly.

Summer Institute on Applied Endocrinology

Dr. R.P.S. Tyagi, Member, Agricultural Scientists Recruitment Board, recently inaugurated a 3-week Summer Institute on Applied Endocrinology in Relations to Production in Farm Animals at the College of Animal Sciences of the Haryana Agricultural University. Speaking on the occasion, Dr. Tyagi said that intensive efforts should be made in the research relating to all aspects of animal physiology so that farm animal production potentials were successfully and optimally exploited for human benefits. He further said that HAU was the first university in India which had given due recognition to animal production science and started Postgraduate Faculty of Animal Sciences in 1966 to give impetus to animal production activities. Since then, through various ICAR coordinated research programmes on cattle and poultry cross-breeding programmes, preservation and conservation of local germplasm through Haryana cattle, the university had been endeavouring to develop high producing crossbreed cattle. Dr. Tyagi called upon the participants to strive hard to modulate light and big processes to suit demands of domestication, production and economics according to the changing circumstances. He urged them to concentrate on the aspect of bio-technology and bio-engineering also which dealt with creation of newer genomes with desirable growth, disease resistance and productive potentialities.

Dr. A.L. Chaudhry, Vice-Chancellor, whose address was read out at the Summer Institute, expressed his satisfaction over the work done by the College on the applied as well as basic aspects of animal physiology. He called upon the participants to visit the villages all over the state frequently so that fertility and reproductivity efficiency of the farmers' livestock might be improved. Dr. Chaudhry asked the participants to popularise the techniques of inducing lactation among the infertile cattle by short-term use as 'Natural Hormones'.

Over 40 participants from all over the country attended the Summer Institute.

NEWS FROM ABROAD

Master's Program in Development Administration

The Carleton University, Ottawa, Canada, offers Master's Program in Development Administration to mid-career professionals working in the fields of development planning and development administration. Launched in 1985 with the financial assistance of Canadian International Development Agency (CIDA) and the Donner Canadian Foundation, the program provides a specially-designed environment in which participants can enhance significantly their capacity to provide leadership in advancing the development of their country.

The program offers a combination of courses in advanced techniques of management together with courses covering a wide variety of current development policy concerns. Students are encouraged to tailor the various offerings to best meet their specific needs.

The full-time program takes five semesters of intensive study to complete. Graduates are awarded the M.A. degree in Public Administration.

The program is administered by Carleton's School of Public Administration, in association with the School of International Affairs.

The Norman Paterson School of International Affairs offers a one year M.A. degree in International Affairs. The program emphasizes an interdisciplinary approach, embracing the fields of political science, economics, history, geography, sociology and law. It is structured to provide the student with a broader understanding of key issues such as global and regional political economy, development studies, and conflict analysis.

Further details can be had from Professor N.H. Lithwick, Supervisor, Development Administration Program, Carleton University Ottawa, Canada K1S 5B6.

Assistance for Scientific Meetings

The Third World Academy of Sciences (TWAS) invites requests for support by Organizers of Scientific Meetings to be held in Third World Countries during the period July-December 1991. Applications are considered only in the fields of Natural Sciences viz. Agricultural Science, Biological Sciences, Biochemistry, Biotechnology, Chemical Sciences, Engineering Sciences, Geological Sciences (*except Geophysics*), Medical Sciences.

The support is provided in the form of travel grants for principal speakers from abroad and/or participants from countries in the same region other than the country where the meeting is held. The amount provided usually does not exceed US$ 4,000. The purpose of the Travel Grants is to encourage the

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Prof. Khanna Named Vice-Chairman, UGC

Professor S.K. Khanna, Secretary, University Grants Commission (UGC) has been appointed the Vice-Chairman of the Commission.

Prof. Khanna was Professor and Head of the Department of Civil Engineering at the University of Roorkee before taking over as the Secretary of the Commission in 1984. On expiry of his five-year tenure as the Secretary in December, 1988, he was reappointed to a second term.

Prof. S.K. Khanna

Prof. Khanna is a Fellow of the National Academy of Science (FNAS), and also a fellow of Indian National Academy of Engineering (FNAE). An authority in the areas of transportation planning, design and engineering, and mass transit system planning and design, he has to his credit over 225 research contributions and a number of books in engineering.

organization of Regional and International Scientific Conferences, Workshops and special meetings in the Third World.

Scientific Institutions and Organizations in Third World Countries holding meetings in their countries may apply for Grants to cover the travelling expenses of lecturers from abroad and/or young scientists from the region.

•Organisers of International Conferences being held in developing countries may apply for grants to assist with travelling expenses of eminent scientists from developing countries, the expenses of principal speakers who are unable to obtain sufficient funds from other sources or travelling expenses for young promising scientists from the region.

Applications should be made on the prescribed form and should state the relevance of the activity to the development of science in the country/region. Special consideration will be given to those meetings which are likely to benefit the scientific community in developing countries and to promote regional and international cooperation in developing science and its application to the problems of the Third World.

The closing date for reciept of completed requests for meetings to be held during July-December 1991 is 1st December, 1990.

Further details and application forms may be obtained from The Third World Academy of Sciences c/o International Centre for Theoretical Physics (ICTP), P.O. Box 586-34100 Trieste-Italy.

News from UGC

INSAT-1B Programme of UGC

Between 16th July to 21st July, 1990 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12, Noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission

6 a.m. to 7.00 a.m.

16.7.90

"Physics of the Sun"

"Material Management"

"Red Headed Hairy Caterpillar"

17.7.90

"Chemical Kinetics-III"

"The Countrywide Classroom"

"The Human Brain-III"

18.7.90

"Piston Assembly for Fuel Efficient Engines"

"Images of Women in History-IV"

"Viruses"

19.7.90

"Signs and Communications"

"Fathomless Folklore"

"Teaching of English Spellings"

20.7.90

"Examination Stress"

"Forests in Peril-III"

21.7.90

"What is a Spastic-I"

"Help for Mother and Child"

"Rhythms Under One Roof"

2nd Transmission

12.00 noon to 1.00 p.m.

16.7.90

"Glimpses of Science at Physical Research Laboratory"

"Management-3 : Management Principles"

"Secrets of the Stone Water"

17.7.90

"Using the Heat of Combustion Apparatus"

"Feedback"

"Jalma-Japanese Leprosy Missionary Association"

18.7.90

"Solar Research-II"

"Forts of Deccan-II : Bidar"

"First Meal of the Day"

19.7.90

"Coal : New Ways to Get and Use It"

"The Colourful World of Minerals"

"Paninian Linguistics - V"

20.7.90

"Introduction to Nuclear Astrophysics"

"Divided Mastermind"

"Teaching and Learning English"

21.7.90

"Landscape Paintings in Water Colour"

"Yakshaganas in Dravidian Literature"

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857–1970 and 1970–75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertion is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

CURRENT DOCUMENTATION IN EDUCATION

A list of select articles culled from periodicals received in the AIU Library during June, 1990.

EDUCATIONAL PHILOSOPHY

Barnett, Ronald. Responsiveness and fulfilment: The value of higher education in the modern world. *Hr Edn Rev* 22(2), 1990, 59-69.

Garrido, Jose Luis Garcia. Comparative education and education sciences: Variations on an old theme. *Prospects* 19(3), 1989, 361-68.

King, Edmund. Comparative investigation of education: An evolutionary process. *Prospects* 19(3), 1989, 369-79.

EDUCATIONAL PSYCHOLOGY

Neumann, Yoram and others. Determinants and consequences of students' burnout in universities. *J Hr Edn* 61(1), 1990, 20-31.

EDUCATIONAL SOCIOLOGY

Henriques, Judge. Education of the disadvantaged: Three episodes. *J Edn & Social Change* 1(4), 1988, 21-38.

Mazumdar, Vina. Education and women's equality. *J Edn & Social Change* 1(3), 1987, 16-51.

Naik, J.P. Relevance of education to development: The rural context. *J Edn & Social Change* 1(1), 1987, 25-34.

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EDUCATIONAL PLANNING

Chitnis, Suma B. Towards equality...? *J Edn & Social Change* 1(4), 1988, 1-20.

Jain, Ranu. National integration in India: Relevance of Government Policy in the field of education. *New Frontiers Edn* 20(1), 1990, 103-15.

La Belle, Thomas J and Ward, Christopher R. Education reform when nations undergo radical political and social transformation. *Comp Edn* 26(1), 1990, 95-106.

EDUCATIONAL ADMINISTRATION

Peretomode, Victor. Explorations in role analysis: A study of the congruencies of role expectations and role performance among academic department heads. *New Frontiers Edn* 20(1), 1990, 21-29.

Willis, David B and Bartell, Carol A. Japanese and American Principals: A comparison of excellence in educational leadership. *Comp Edn* 26(1), 1990, 107-23.

CURRICULUM

Tonkin, Humphrey and Edwards, Jane. Internationalizing the university: The arduous road to euphoria. *Ednl Record* 71(2), 1990, 14-17.

EDUCATIONAL RESEARCH

Baldwin, Roger G. Faculty vitality beyond the research university: Extending a contextual concept. *J Hr Edn* 61(2), 1990, 160-80.

Gardiner, John J. Excellence in research: Restructuring higher education for the 1990s. *Ednl Record* 71(2), 1990, 51-53.

Shapiro, Harold T. Reflections on the future of university based research. *Ednl Record* 71(2), 1990, 48-50.

EDUCATIONAL TECHNOLOGY

Beishuizen, Meindert and Van Putten, Kees. The use of videotaped broadcasts in interactive teaching. *British J Ednl Tech* 21(2), 1990, 95-105.

Jackson, Gregory A. Evaluating learning technology: Methods, strategies, and examples in higher education. *J Hr Edn* 61(3), 1990, 294-311.

Norris, Nigel and others. Evaluating new technology: The case of the interactive video in schools (IVIS) programme. *British J Ednl Tech*. 21(2), 1990, 84-94.

EDUCATIONAL EVALUATION

Banta, Trudy W and Pike, Gary R. Methods for comparing outcomes assessment instruments. *Res Hr Edn* 30(5), 1989, 455-69.

Boud, David. Assessment and the promotion of academic values. *Studies Hr Edn* 15(1), 1990, 101-111.

Gabriel, J.P. and Jayapandian, Peter. Whatever it is, He is my teacher. *New Frontiers Edn* 20(1), 1990, 46-52.

Rathod, Navnit S. An application of item response theory to criterion-referenced test. *Prog Edn* 64(9), 1990, 213-15, 212.

Rogers, Brenda H and Gentemann, Karen M. The value of institutional research in the assessment of institutional effectiveness. *Res Hr Edn* 30(3), 1989, 345-55.

ECONOMICS OF EDUCATION

Bray, Mark. The quality of education in multiple-shift schools: How far does a financial saving imply an educational cost? *Comp Edn* 26(1), 1990, 73-81.

Carnoy, Martin. High technology and education: An economist's view. *J Edn & Social Change* 1(3), 1987, 78-103.

Chatterjee, Sukla and Rudra, Ashok. Inequality, educational qualifications and chance factors. *Eco Pol Weekly*, 25(17), 1990, 955-62.

Rickman, Bill D and Parker, Carl D. Alternative wages and teacher mobility: A human capital approach. *Eco Edn Rev* 9(1), 1990, 73-9.

Shirai, Masatoshi. The investment rule for public education. *Eco Edn Rev* 9(1), 1990, 25-30.

Vashist, P.D. Drop-out problems in education. *Yojana* 33(20), 1989, 32-33.

SCIENCE EDUCATION

Hackett, Edward J. Science as a vocation in the 1990s: The changing organizational culture of academic science. *J Hr Edn* 61(3), 1990, 241-79.

PHYSICAL EDUCATION

DeSensi, Joy T and others. Sport management curricular evaluation and needs assessment: A multifaceted approach. *J Sport Management* 4(1), 1990, 31-58.

Snyder, Eldon E and Jo Kane, Mary. Photo elicitation: A methodological technique for studying sport. *J Sport Management* 4(1), 1990, 21-30.

VOCATIONAL EDUCATION

Sathe, S.P. Non-formal legal education. *J Edn & Social Change* 1(2), 1987, 73-84.

DISTANCE EDUCATION

Naylor, Paul and others. Using student and tutor perspectives in the development of open tutoring. *Open Learning* 5(1), 1990, 9-18.

COMPARATIVE EDUCATION AND COUNTRY STUDIES

Avis G. The Soviet higher education reform: Proposals and reactions. *Comp Edn* 26(1), 1990, 5-12.

Maglen, Leo R. The impact of Bilateral Aid on educational development: The case of Australia and the South Pacific. *Comp Edn* 26(1), 1990, 83-93.

Rust, Val D. The policy formation process and educational reform in Norway. *Comp Edn* 26(1), 1990, 13-25.

Sadlak, Jan. The Eastern European challenge: Higher education for a new reality. *Ednl Record* 71(2), 1990, 30-37.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities.

BIOLOGICAL SCIENCES

Anthropology

1. Harbir Kaur. *A study of the human clavicle*. Punjab.

Environmental Sciences

1. Sarma, Hidangmayum Kulachandra. *A study of seismic hazard for Northeast India and neighbourhood*. Gauhati. Dr. S.K. Sarmah, Prof. and Head, Department of Environmental Science, Gauhati University, Guwahati.
2. Sarma, Ratneswar. *A study of the velocity distribution and attenuation of short period P waves in the earth's lower mantle*. Gauhati. Dr. Surya Kanta Sarmah, Prof. and Head, Department of Environmental Science, Gauhati University, Guwahati.

Biology

1. Arunachalam, M. *Studies on the fauna associated with aquatic weeds along the South-West coast of India*. Kerala. Dr. N. Balakrishnan Nair, Prof., Chairman, Science Technology and Environment, Govt. of Kerala, Kerala.

Biochemistry

1. Ayyappan, P. *Biochemical aspects of differentiation and development: Orchid (Vanilla) tissue culture and germinating tea seed*. Calicut. Dr. P.S. Krishnan (Retd.) Department of Botany, University of Calicut, Calicut.
2. Goswami, Indrani. *Studies on N_2 fixing and hydrocarbon utilizing bacteria*. Calcutta.
3. Sa, Gaurisankar. *Biochemical studies on human fetal lung during embryogenesis with special reference to fatty acid binding protein*. Calcutta.
4. Suganan, V.S. *Studies on filariasis with special reference to excretory and secretory materials*. Kerala. Prof. R. Kaleysa Raj, Prof. and Head, Department of Biochemistry, University of Kerala, Kariavattom.

Microbiology

1. Chada, Bhupinder Singh. *Bioconversion of rice straw into ethanol*. PAU.

Botany

1. Baishya, Ramala. *Studies on pathological and certain biochemical investigation concerning infections and rotting of Ipomoea batatas by fungi with particular reference to their nutritive value in storage.* Gauhati. Dr. D.N. Baishya, Prof., Department of Botany, Gauhati University, Guwahati.

2. Bhuyan, Dilip Kumar. *Medicinal flora of Lohit District of Arunachal Pradesh with special reference to ethnobotany.* Gauhati. Dr. Champaklal Boissya, Prof. and Head, Department of Botany, Gauhati University, Guwahati.

3. Goswami, Tanun Krishna. *Certain aspects of phosphate dissolving microorganisms of the non-rhizosphere and rhizosphere soils of rice.* Gauhati. Dr. L.C. Kagti, Prof. (Retd.), Department of Botany, Gauhati University, Guwahati.

4. Jaiswal, Namita. *Ecology and control of diseases of some forest tree species in nurseries.* HS Gour. Prof. G.P. Mishra, Department of Botany, Dr. Harisingh Gour Vishwavidyalaya, Sagar and Dr. N.K. Soni, Reader, Department of Botany, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

5. Jana, Subhash Chandra. *Studies on relationship among members of the azotobacteraceae and effect in vitro of some pesticides on nitrogen fixation in Azotobacter chroococcum.* Calcutta.

6. John, Philip. *Developmental, ultrastructural, cytochemical and experimental studies of the pistil of Catharanthus roseus (L) G. Don (Apocynaceae) and Withania somnifera Dunal (Solanaceae).* Baroda.

7. Karunakar, R. Issac. *Studies on root and stalk rot of sorghum with special reference to soil survival of stalk rot fungi.* Osmania.

8. Meena Kumari. *Physiology of resurrection in desiccation tolerant plants.* PAU.

9. Negi, G.C.S. *Phenology and nutrient dynamics of tree leaves in Kumaun Himalaya.* Kumaun. Dr. S.P. Singh.

10. Niroula, Chhetry Gopal Kumar. *Phytopathological investigation and biometric studies of fungal disease in french bean, Phaseolus vulgaris L.* NEHU. Prof. R.R. Mishra, Department of Botany, North Eastern Hill University, Shillong.

11. Pande, Manju Lata. *Studies on leaf surface microfungi of Setaria italica (Linn) Beauv. with reference to antagonism and disease development in Almora Hills.* Kumaun. Dr. R.C. Gupta.

12. Pathak, Promila. *Asymbiotic germination and clonal propagation of some commercially important and endangered orchids of India using tissue culture techniques.* Punjab.

13. Rashid, Parveen. *Characterization of lead toxicity in mungbean and wheat plants.* Calcutta.

14. Reddy, V.S. *Analysis of soil and vegetation of land slide-damaged and undamaged forest sites in Kumaun Himalaya: A case study on recovery of forest eco-systems.* Kumaun. Dr. J.S. Singh.

15. Sud, Keshav Chander. *Morphological and embryological studies in some taxa of Asteraceae.* HP.

16. Sudhakar, G. *Studies on the impact of paper mill effluents on the ecology of the river Godavari.* Osmania.

Agriculture

1. Aruna Devi, M. *Callus initiation, plant regeneration from anthers of different genotypes and androclonal variation in Indica rices.* Osmania.

2. Chauhan, Khamesh Chand. *Mutation breeding in robinia, Robinia pseudacacia Linn.* YS Parmar. Dr. P.K. Khosla, Director of Extension Education, University of Horticulture and Forestry, Solan.

3. Dey, Swapan Kumar. *Basis of resistance to ascochyta blight in chickpea, Cicer arietinum L.* PAU.

4. Harsh Raman. *Somaclonal variation and distinct hybridization for canker resistance in Citrus species.* PAU.

5. Joon, Mohinder Singh. *Response of Santa rosa plum trees to urea foliar sprays and soil application.* YS Parmar. Dr. V.P. Bhutani, Department of Fruit Culture and Orchard Management, College of Horticulture, Solan.

6. Kadam, Prakash yashwant. *Heterosis studies in ridge gourd, Luffa aculangula Roxb. L.* MP Krishi. Dr. U.T. Desai, Assoc. Prof., Department of Horticulture, Mahatma Phule Agricultural University, Rahuri.

7. Kapadia, Maganlal Narsinhbhai. *Studies on biology, population dynamics and impact of insecticides on natural enemies of cotton whitefly, Bemisia tabaci Gennadius with special reference to Chrysoperla carnea Stephens.* Marathwada Agril. Dr. S.N. Puri, Head, Department of Entomology, Marathwada Agricultural University, Parbhani.

8. Khadeer, M.A. *Mutational studies in the improvement of safflower, Carthamus tinctorius L.* Osmania.

9. Krishna Mohan. *Nitrogen and sulphur management in rai, Brassica juncea.* Rajendra Agrl. Dr. H.C. Sharma, Prof., Department of Agronomy, Project Coordinator, Diaryland Project, Bihar Agricultural College, Sabour Campus, Rajendra Agricultural University, Pusa (Bihar).

10. Kuldeep Singh. *Cytogenetic analysis of Karnal bunt resistance involving wild donors and cultivated species of wheat.* PAU.

11. Mali, Anandrao Ramchandra, *Studies on bollworm resistance in G. hirsutum L cotton with special reference to spotted bollworm E. vittella Fb.* MP Krishi. Dr. S.K. Dorge, Vice-Chancellor, Mahatma Phule Agricultural University, Rahuri.

12. Mondal, Ajijul Haque. *Some aspects of clay humus complexation.* Calcutta.

13. Munsi, Parthasarathi. *Studies on the nutational requirements and clonal selection of Citronella, Palmarose and Mentha.* Calcutta.

14. Singh, Shyam Bihari. *Studies on the effect of split application of nitrogen, desicaters and time of harvest on yield and quality of summer rice.* Rajendra Agrl. Dr. S.N. Ojha, Prof., Department of Agronomy, Bihar Agricultural College, Sabour Campus, Rajendra Agricultural University, Pusa (Bihar).

15. Vivek. *Water use studies of sunflower under differential nitrogen levels in double cropping system.* HP Krishi. Dr. I.S. Chakor, Department of Agronomy and Agrometeorology, College of Agriculture, Palampur.

16. Wadnerkar, Digamber Wamanrao. *Bioefficacy and residues of certain synthetic pyrethroids in/on brinjal and cabbage. Marathwada Agrl. Dr. V.M. Pawar, Senior Insect Toxicologist, Marathwada Agricultural University, Parbhani.*

Zoology

1. Bhagwant, Suresh. *Comparison of immume responses to different age groups of swiss albino mice infected with Hymenolepis nana and Ancylostoma caninum.* Vikram. Dr. G.N. Johari, Head, Department of Zoology, Vikram University, Ujjain.

2. Desai, Smruti Sadanand. *Certain observations on the influence of beta-andrenergic agents and sex hormones on some aspects of metabolism of submandibular salivary gland of male albino rats, Rattus norveoicus albinus.* Baroda.

3. Joshi, Rajiv. *Life history and damage potential of Calandra Species (Coleoptera: Curculionidae) in the oak forests at Nainital and environs.* Kumaun. Dr. B.R. Kaushal.

4. Mohammad Zahangir Alam. *Certain biochemical and nutritional studies on improvement of technology of storage for marine as well as freshwater fishes.* Baroda.

5. Prabhakar, Elizabeth. *The electrophysiological and behavioural correlates of taste in the food intake of rats.* Bangalore. Dr. B.S. Rao, Department of Physiology, St. John's Medical College, Bangalore.

6. Saha, Tapas Chandra. *Influence of temperature on the life cycle of two glossiphoniid leeches.* Calcutta.

7. Sarkar, Sipra. *Pesticide effects on reproduction in the female mice with special reference to lindane (Y-HCH).* Calcutta.

8. Sarmah, Baruah Rima. *Some aspects of actions of juvenile hormones and precocenes on lady bird beetle, Epilachna vigintioctopunc-*

tata Fabr (Coleoptera: Coccinelidae). Gauhati. Dr. H.C. Mahanta, Prof., Department of Zoology, Gauhati University, Guwahati.

9. Thakur, Nutan. *Studies on the effect of some pesticides on the blood of fishes. HS Gour. Dr. (Mrs.) S. Sahai, Reader, Department of Zoology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.*

Medical Sciences

1. Bhatt, P.S.N. *Further studies on the concept and management of Grahni and its relation to agni*. Gujarat Ayur. Prof. Gurudip Singh, Reader, Department of Kayachikitsa, Gujarat Ayurved University, Jamnagar.

2. Janardhana Rao, G. *Studies on surfactant system of lung*. Mangalore. Dr. A. Krishna Rao, Emeritus Prof., Department of Physiology and Head, Department of Medical Education, Kasturba Medical College, Manipal.

3. Jawalkar Ram. *Management of pain in osteoarthritis of knee joint by tramcutaneous electrical nerve stimulation*. Osmania.

4. Manoj Kumar. *Synthesis and study of hetero analogues of steroids*. Punjab.

5. Nirmal, B.M. *The comparative study of concepts of pathogenesis*. Gujarat Ayur. Prof. M.S. Shastry, Department of Kaumarbhritya, Gujarat Ayurved University, Jamnagar.

Animal Husbandry

1. Ishwar, Ajay Kumar. *Reproductive performance in goats following estrus synchronization and superovulation*. Birsa Agrl.

2. Sharma, Banshidhar. *A study on crossbreeding of desi with landrace and large white yorkshire pigs*. Birsa Agrl.

3. Singh, Bal Raj. *Superovulation embryo collection and cytomorphology of genital organs in prepubertal and adult goats*. Birsa Agrl.

4. Singh, Lal Babu. *Genetic architecture of growth production and reproduction in black Bengal and its half bred goats*. Birsa Agrl.

EDUCATION NEWS INDEX

A list of select articles and editorials on Education from newspapers received in the AIU Library during June, 1990.

EDUCATIONAL PHILOSOPHY

Rorty, Richard. Education without dogma. *Free Press Journal* 10.6.90.

EDUCATIONAL SOCIOLOGY

Kohli, Anita. Depriving girls of the right to think. *Patriot* 22.6.90.

Sood, P.S. Educational innovation for rural India. *National Herald* 5.6.90.

EDUCATIONAL POLICY & PLANNING

Das, Chandra Mohan. Problem of education and NEP. *The Assam Tribune* 15.6.90.

Dogra, Bharat. Education-the tasks ahead. *National Herald* 22.6.90.

Kwatra, R.D. A new policy on education. *The Assam Tribune*. 5.6.90.

Mampilli, S.G. Why not English for all? *The Hindustan Times* 22.6.90.

Raghavan, G N S. Do Navodaya schools serve their purpose? *Deccan Chronicle* 17.6.90.

Ramunny, Murkot. Re-examination not at the cost of continuity. *The Hindu* 9.6.90.

REVIEWING OR dithering (Editorial)? *The Tribune* 17.6.90.

Suroor, Hasan. NEP: Rejected without trial? *The Hindu* 9.6.90.

Vedantam, Vatasala. Towards a policy of honesty. *Deccan Herald* 3.6.90.

EDUCATIONAL ADMINISTRATION

Inderpal Singh. Wanted: Crisis management group. *The Tribune* 3.6.90.

Marmar, M. Recruitment is the key to quality. *The Hindu* 5.6.90.

Patankar, R.B. Small academic centres can do a lot of useful work. *The Times of India*, 5.6.90.

Pathak, Dayananda. Colleges sans academic character. *The Assam Tribune* 1.6.90.

Raina, Badri. The insider status and a vice-chancellor's options. *The Times of India* 5.6.90.

Smith, N.R. Erosion in university education. *The Statesman*, 23.6.90.

CURRICULUM

Ahana Lakshmi, D.K. Emphasis is on understanding the ecosystem. *The Hindu* 19.6.90.

Prema Nandakumar. Little is taught about environment issues. *The Hindu*, 26.6.90.

LANGUAGE & LANGUAGE POLICY

Agarwal, Kavita. English—a major asset. *The Hindustan Times* 27.6.90.

Agarwal, Kavita. In defence of English. *The Statesman* 20.6.90.

Anand, Mulk Raj. English is a valid literary medium. *The Times of India* 9.6.90.

Chopra, Subhash. Putting English in its place. *National Herald* 19.6.90.

Jug Suraiya. Getting together to chuck out English, with style. *The Times of India* 11.6.90.

Jug Suraiya. The chips are down for post-modern Hindi. *The Times of India* 21.6.90.

Khurana, Anand. Mulayam out to "burn" English. *Deccan Chronicle* 9.6.90.

Panchapagesan, R. More of literary than language aspects. *The Hindu* 19.6.90.

Sagar, Keshav. English is mass education. *National Herald* 30.6.90.

Vrijendra. No place for mother tongue. *Free Press Journal* 5.6.90.

VOCATIONAL EDUCATION

Nagaraja, Bhargavi. Seats of education for toilers. *Deccan Herald* 16.6.90.

Sharma, Inderjit. What management education can't do. *The Economic Times* 7.6.90.

Varadan, M S S. Management education in future. *The Hindu* 14.6.90.

DISTANCE EDUCATION

Mankekar, Kamla. Distance learning for development. *Patriot* 28.6.90.

Rajagopalan, T. Reinterpreting role of universities. *The Hindu* 3.6.90.

TEACHERS & TEACHING

Karandikar, A G. Humour in classroom. *Free Press Journal* 21.6.90.

Prakash, R. Are the teachers interested only in more salary? *The Times of India* 20.6.90.

EDUCATIONAL TECHNOLOGY

Cooper, Darius. Career in computers. *Amrita Bazar Patrika* 5.6.90.

ECONOMICS OF EDUCATION

Amrik Singh. It has many implications. *Deccan Herald* 8.6.90.

Amrik Singh. UGC's primary task can't be divided. *The Times of India* 2.6.90.

Dhananjaya, M H. Strategy to finance engineering education. *The Hindu* 12.6.90.

DISTRESSING DROPOUT rate (Editorial). *Deccan Chronicle* 29.6.90.

LIBRARIES & BOOKS

Choudhury, Bijay Kumar and Mohanta, R N. The librarian's responsibilities. *The Hindu* 26.6.90.

STUDENTS & STUDENT ACTIVITIES

Deshpande, Rajeev. Admission time in Delhi University. *Indian Express* 16.6.90.

Gill, S.S. A passive observer? *The Hindustan Times* 27.6.90.

Gorton, Philip. New codes of conduct for Chinese students. *Free Press Journal* 9.6.90.

PHYSICAL EDUCATION & SPORTS

Banerjee, Samuel. Politics the game they play. *The Tribune* 15.6.90.

ADULT EDUCATION

Rai, Usha. Student mobilisation is the key to literacy. *The Times of India* 23.6.90.

ELEMENTARY & SECONDARY EDUCATION

Amrik Singh. Why children stay out of school. *The Times of India* 23.6.90.

Bhattacharyya, B. School education in Assam. *The Assam Tribune* 11.6.90.

Eswar, H P. Relieve children of their overload. *The Pioneer* 29.6.90.

Mojumdar, Modhumita. Money's role in education. *The Statesman* 6.6.90.

Roy Pereira. Coaching classes are a curse. *Free Press Journal* 24.6.90.

Roy Pereira. Is the tot properly taught? *Free Press Journal* 24.6.90.

Phookun, Suren Ram. The school: Its role in society. *The Assam Tribune* 27.6.90.

Raghavan, G.N.S. Religious illiteracy in India. *The Pioneer* 8.6.90.

Rajagopalan, T. What cost schooling? *The Hindu* 10.6.90.

COMPARATIVE EDUCATION & COUNTRY STUDIES

Parameswaran, P. Malaysia revamps education system. *The Pioneer* 25.6.90.

INSTITUTIONAL PROFILE

Bhattacharjea, Ajit. The five-star finish. *The Tribune* 2.7.90.

Kanwaldeep Singh. Hostel with distinct culture. *The Statesman* 28.6.90.

Sarkar, Chanchal. Transforming the IIAS. *Indian Express* 16.6.90.

BIOGRAPHICAL PROFILES

Mazumdar, S. Teaching his first love. *National Herald* 2.7.90.

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   - (b) Scientist (Forestry).
3. **Assistant Professor/equivalent in Rs. 2200-75-2800-100-4000:**
   - (a) One Asstt. Professor each in Electronics, Family Resource Management, Electrical Engineering, *English, *Zoology.
   - (b) One+*One Assistant Professor (Farm Forestry).
   - (c) One Asstt. Scientist each in *Rural Sociology, *Horticulture and Animal Health.
   - (d) *D.E.S. (Entomology).
   - (e) *Assistant Rice Breeder (Plant Breeding).
   - (f) Assistant Residue Chemist.

NON-TEACHING POSTS

4. **Posts in Rs. 2200-75-2800-100-4000+N.P.A. Admissible:**
   One Lady Medical Officer (For teaching in Home Science College).
5. **Posts in Rs. 1500-2000 (Un-revised):**
   Public Relations Officer.
6. **Posts in Rs. 1740-60-2700-EB-75-3000:**
   One Instructor (Kabaddi) and One Instructor (Fine Arts).
7. **Posts in Rs. 1640-60-2600-EB-75-2900:**
   - (a) One School Lecturer (Math).
   - (b) **Senior Technical Assistants:
     - (i) Entomology-2 (ESM-1, Gen.-1)
     - (ii) Animal Science (Gen.)-1
     - (iii) Veterinary-2 (Gen. 1, ESM-1)
     - (iv) Plant Breeding-4 (SC-2, ESM-2)
     - (v) Plant Pathology-2 (ESM-1, SC-1)

- (vi) Agronomy-1 (Gen.)
- (vii) Horticulture-1 (Gen.)
- (viii) Vegetable Crops-1 (ESM)
- (ix) Agro Forestry-1 (Gen.)
- (x) Nursery Technology (Mass Culturing of Trees)-1 (Gen.)

8. **Posts in Rs. 1400-40-1600-50-2300-EB-60-2600:**
   - (a) One Teacher (Child Development-Nursary)
   - (b) Artist: One for ESM
   - (c) Game Organiser: One (ESM)
   - (d) Technical Asstt. (Home Science) One for S.C.
   - (e) **Artist-cum-Photographer-1 (ESM)
   - (f) Vety. & Livestock Development Asstt.-7 (SC-2, ESM-1, PH-1, Gen.3)
   - (g) Junior Programmer: One (ESM)

9. **Post in Rs. 1350-30-1440-40-1800-EB-50-2200:** Pharmacist-1 (ESM)

   Note: In case suitable candidate belonging to reserved category is not available, the post shall be filled amongst from the candidates of general category.

10. **Posts in Rs. 950-20-1150-EB-25-1500+Rs. 100 S.P.** Steno-typists (English): For preparation of panel (20% for SC, 10% for BC, 17% for ESM & 3% for PH).

11. **Posts in Rs. 775-12-955-EB-14-1025:** Boiler-cum-Plant Attendant-1 (Gen.)

* Posts are reserved for Scheduled Caste candidates. In case suitable candidates are not available the post will be filled from amongst General Category candidates.

** Posts are upto 31.3.1991 but likely to continue.

—REGISTRAR

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Applications are invited for a Junior Research Fellow (Rs. 1800/- P.M.) in a UGC-sponsored project entitled, "Development of methods and monitoring of the quality of water resources with reference to the input of Xenobiotics". The project is tenable for a period of 3 years. The Candidate should be M.Sc. in Botany with at least 55 p.c. marks having specialisation in plant ecology/microbiology/freshwater biology or related subjects. Preference will be given to NET qualified candidates and if NET qualified candidates are not available, selection will be made for the post of Project Assistant (Rs. 1200/- P.M.). Candidates who have appeared in the M.Sc. final examination may also apply. Application in duplicate with bio-data (name, address, father's name, age, nationality, academic qualification, research experience) and attested copies of certificates and mark sheets should reach to Dr. B.K. Tiwari, Head, Centre for Eco-development on or before the **15th July, 1990.**

B.K. Tiwari

MOTHER TERESA WOMEN'S UNIVERSITY
MADRAS CAMPUS

NOTIFICATION NO. 62

Applications for admission to the following courses are invited from women candidates possessing the required qualification specified for each course, commencing from August 1990.

1. M. PHIL. 1990. in

Economics, Education, English, Family Life Management, Historial Studies, Psychology, Sociology, Tamil.

Cost of Application – Rs.30/-

ELIGIBILITY FOR ADMISSION

(a) I or II Class Post Graduate Degree (not less than 55%) in the concerned subject.
(b) For M. Phil. in Education, M.Ed. is essential.
(c) For M. Phil. in Psychology, Candidates with Master's Degree in Psychology or any other subject with specialisation in Psychology are eligible to apply.

2. **M.A.** in

Economics, English, Guidance and Counselling, History, Sociology and Women's Studies

(Subject to approval by the Academic Committee) Cost of Application – Rs. 25/-

Eligibility for Admission

(a) Economics – Bachelor's Degree in Economics or Mathematical Economics or Econometrics.
(b) English and Tamil – 55% and above in the concerned Bachelor's Degree/Part I (for English)/Part II (for Tamil)
(c) History – Bachelor's Degree in History with 55% and above.
(d) Women's studies Guidance and Counselling and Sociology Any Bachelor's Degree with 55% marks and above.

Note: All Courses have special reference to Women.

Application forms can be had from Mother Teresa Women's University, 13, Race Course Road, Guindy, Madras-32 by sending Demand Draft as specified, payable to the Registrar, Mother Teresa Women's University Madras and accompanied by a stamped (Rs. 3/-) self addressed envelope.

Last date for the receipt of filled in application is **23rd July 1990.**

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University News

MONDAY, JULY 16, 1990

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PRO-CHANCELLOR
VICE-CHANCELLOR
REGISTRAR

Shri Shivajirao Deshmukh, Pro-Chancellor and Minister for Agriculture and Horticulture, Govt. of Maharashtra, speaking at the Sixteenth Convocation of the Konkan Krishi Vidyapeeth. On his right is Shri Annasaheb Shinde, who delivered the Convocation Address. Dr. S.B. Kadrekar, Vice-Chancellor, is seated on his left.

CENTRAL SCIENTIFIC INSTRUMENTS ORGANISATION
(Council of Scientific & Industrial Research)
SECTOR-30, CHANDIGARH-160020

ADVERTISEMENT No. 2/90

Applications are invited on plain paper in the given proforma for the posts mentioned below in the Central Scientific Instruments Organisation, Sector 30, Chandigarh:

PART-I

Post No. 1/1
TECHNICAL ASSISTANT GRADE VIII (1 post)
Qualifications: 3 years diploma in Instrument Technology.
Job Requirements: Aptitude for Instrument Development Work.
Pay Scale: Rs. 1400-40-1800-EB-50-2300 Plus usual allowances as admissible to CSIR employees.

Post No. 1/2
TECHNICAL ASSISTANT GRADE VIII (2 posts)
Qualifications: 3 years diploma in Electronics OR 3 years diploma in Instruments Technology with one year post diploma in Industrial Electronics.
Job Requirements: Aptitude for Instrument Hardware and Software Development Work.
Pay Scale: Rs. 1400-40-1800-EB-50-2300 Plus usual allowances as admissible to CSIR employees.

PART-II

Post No. 2/1 (Reserved for Scheduled Tribe)
TECHNICAL ASSISTANCE GRADE VIII (3 posts)
(Number of posts are likely to vary)
Pay Scale: Rs. 1400-40-1800-EB-50-2300 Plus usual allowances as admissible to CSIR employees.
Qualifications: Diploma in Mechanical Engineering/Instrument Technology of three years duration.

Post No. 2/2 (Reserved for Scheduled Tribe)
TECHNICAL ASSISTANCE GRADE VIII (1 post)
Qualifications: 3 years Diploma in Electronics OR Diploma in Instrument Technology with Post Diploma in Electronics.
Pay Scale : Rs. 1400-40-1800-EB-50-2300 Plus usual allowances as admissible to CSIR employees.

PROFORMA FOR APPLICATION

1. Name of the post applied for.
2. Have you registered yourself with the 'National Register' compiled by CSIR? Answer "Yes" or "No".
3. Name in full (in block letters)
   (in case of female candidates the appropriate word 'Miss or Mrs' should be given).
4. Present/permanent address.
5. Date and place of birth
6. Are you
   (a) A citizen of India by birth and/or by domicile?
   (b) a person having migrated from Pakistan with the intention of permanently settling in India? or a subject of Nepal or Sikkim?
   *Answer "Yes" or "No" and cancel the words which are not applicable.
7. Name of the State to which you belong
8. Father's Name, address and occupation
9. Is (or was) your father*
   (a) a citizen of India by birth and/or by domicile?
   (b) a person having migrated from Pakistan with the intention of permanently settling in India? or a subject of Nepal or Sikkim?
   *Answer "Yes" or "No" and cancel the words which are not applicable.
10. State your
    (a) Religion
    (b) Attach a certificate from the District Magistrate in support of your claim as SC/ST if you belong to such category.
    (c) Are you an Anglo-Indian?
    (d) Are you an Ex-Serviceman if so state amount of pension.
11. Particulars regarding your University or higher education giving details of the name of University/College, date of entry and date of leaving.
12. Particulars of all examinations passed and degrees and technical qualifications obtained at the University or other places of higher technical education or instruction (commencing with the Matriculation or equivalent examination). Give class or division and also subjects taken and year of passing.
13. Have you been outside India? If so, give particulars of countries visited, duration and purpose of visit.
14. How have you been employed? Give particulars of the employer (office) date of joining and leaving along with name of employment with designation, salary and grade.
15. Are you a Government servant at present? Answer "Yes" or "No" if yes, state whether your appointment is temporary or permanent.
16. Particulars of the posts under the C.S.I.R. for which you were an applicant giving name of the post and laboratory alongwith advertisement number and result.
17. Are you a relation of any person employed in CSIO or its Service & Maintenance Centres? If so, please give complete details thereof.
18. Reference of at least three persons.
    (These should be residents of India and holders of responsible positions. They should be intimately acquainted with the applicant's character and work and must not be relations. If the candidate has been in employment, he should either give his present or most recent employer or immediate superior as a referee or produce a testimonial from him in regard to the candidate's fitness for the post for which he is an applicant.
19. Copies of testimonials (details be given)

Full signature of candidate with date

GENERAL CONDITIONS

1. Completed applications with the attested copies of supporting documents must reach the Director, CSIO, Sector 30, Chandigarh by **7th Aug, 1990.**
2. The candidates applying for the post No. 1/1 and 1/2 mentioned in Part-I of this advertisement are required to remit the application fee of Rs. 8/- in the form of Indian Postal Order drawn in favour of Director, CSIO, Chandigarh (NO APPLICATION FEE IS REQUIRED IF CANDIDATE BELONGS TO SC/ST CATEGORY).
3. The candidates applying for the post No. 2 mentioned in part II of this advertisement are not required to remit any application fee since the post is reserved for ST.
4. The pay scale of all the posts of Technical Assistant Grade VIII advertised in this advertisement is same and at present the total remuneration at Chandigarh on the basic pay of Rs. 1400/- is Rs. 2072.
5. The appointments will be made as per CSIR rules. Candidates called for interview will be paid single 2nd class rail fare by the shortest route from the place of residence/actual departure on production of tickets.
6. The posts are temporary and carry usual allowances admissible to Central Government employees. Service of incumbents are transferable anywehre in India. Candidates already working in Government Departments/Undertakings/Autonomous Organisations should send their applications through proper channel. Applications received incomplete in any respect or received after the last date for whatsoever reasons will be rejected. Canvassing in any form and/or bringing in any influence political or otherwise, will be treated as a disqualification for the post. The applications will be shortlisted for calling candidates for interview and decision of the institute in this regard will be final.

"INTERIM ENQUIRIES WILL NOT BE ATTENDED TO"

25 JUL 1990

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

Understanding the Defiance of Youth

Meenakshi*

It is usual cry that the youth has turned defiant and destructive and if his designs are not checked in time the fabric of society is liable to be shattered beyond repair. It is feared that if the adolescent mood is allowed to assume ugly proportions, we will see the annihilation, before our eyes, of all that the mankind has produced as a result of its toils over many many centuries.

Is the youth really defiant and is the danger genuinely gross? The answer is seemingly in the negative. It appears that understanding of most people on the subject is quite confused. Firstly, most of us are annoyed by the fact that most frequently children consider us, their parents, as just the general symbol of the adult. They have suddenly emptied us of all personal relationship with them. We have stopped being Ram's father or Mohan's mother and we simply represent those adults from whose grip they are trying to emancipate themselves. And unfortunately, the same mistake is committed by us, the adults. When we see children entering the stage of adolescence, most fathers and mothers do not react to their sons and daughters as persons but as though they represented the world of adults. This peculiar phenomenon, natural and harmless within limits often becomes a real block to wise handling of youthful behaviour. Many situations grow into sham battles over a course when the immediate problem could have been easily solved if the two adversaries had remained what they were to begin with.

In most cases, the defiance is grown out of disorganisation within the world surrounding a child, in the house, not outside at all. It is not a typical youth behaviour. If a sixteen year old child tries to defend his mother against the onslaught of his drunken father and hits him a bit too hard, why do our newspapers so readily call it a teenage crime, typical of the youth of our time. Conversely, however, when a 15 year old girl, at the risk of her life, stops a running train rushing into a broken rail track, the heroism is credited to herself and not to the body of the youth. When public attitudes incline toward stereotyping of this kind, there is cause for deep concern. Collective suspicion and negativism of one group towards another always backfires by engendering conscious or unconscious counter-aggression and distrust from the other side. To increase inter-group tensions between world of grown-ups and the youth of our time, is the last thing we should do at this point of history. We have paid heavy price in the past for collective prejudices in the areas of race, religion, class and caste. Let us not repeat the folly again.

Secondly, adult disgust with youth is easily aroused when the young people gather in mobs. Their boisterous behaviour gets on our nerves and reinforces our suspicious stereotypes. In fact, we suffer from optical illusion. The group behaviour is generally different from individual behaviour and much remains to be learnt about the group behaviour and the causes which create it. It seems important for the fields of mental hygiene and preventive psychiatry to tackle the collective confusions about youthful behaviour in which the present adult generation indulges in to cope with problems of youth itself.

Let us, now find, what sails under the heading, defiance, when the children clamour for adjustment with their surroundings. We would say they lack spine and we want them to retain the capacity for intelligent rebellion i.e. courage to stick to what they believe in even against strong

(Continued on page 13)

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* *Lecturer in Educational Psychology, Department of Education, Punjabi University, Patiala.*

Education, Women Entrepreneurship and National Development

Indian women's role, their status and problems are linked to our history and social system. They offer a paradox, a contradiction and a challenge in their scoietal application linked to development. Generally it is stated that they suffer from malnutrition, illiteracy, exploitation and social atrocities. Differentials resting on discrimination have generated figures to highlight their inequalities and inadequacies to cope with economic adventures. Even the dominant modernising ideologies have not broken their heterogeneity. They continue to be isolated and more disadvantaged group even among the so-called disadvantaged section of our society. Lack of education has always been a handicap in their way to social awareness. The New Education Policy (1986) envisages "a positive interventionist role for education in the empowerment of women". Perceptions on women and industrial growth are still hazy if not totally retrograde despite many referring to them as a decisive force for any social change. In retrospect women have been, by and large, linked to home and hearth. This has traditionally resulted in their economic dependence, social neglect, political ignorance, compounded by strong forces of casteism, semi-feudal sensibilities, dominant agri base, lack of education, religious beliefs, poverty, remoteness and un-scientific attitudes. It is in the context of the presence of these critical factors that awareness requires to be created to re-define their role in economic growth. With our emphasis on mixed economy and industrialisation in the wake of global consumerism women's role acquires a new significance and focus.

Economic growth leading to national prosperity is the commitment of our government. Entrepreneurship is the mantle of industrial development and has to be the key word to achieve this. Enterprise is not an exclusive characteristic of a particular community or society. It is an initiative or an urge in any individual who wants to be a harbinger of change—both quantitative and qualitative contributing to social development. The study of entrepreneurship concerns economists, social psychologists, political scientists and historians besides the state because it is a major determinant of the rate of economic growth of the country. It is only an entrepreneur who detects and evaluates every opportunity in the society to make synergic adjustments to ensure economic growth through the coordination of scarce resources. Despite our cultural relativism and scarcity of essential inputs, it is only the entrepreneur who initiates and organises an enterprise in such a manner as to ensure production after providing for capital, labour, material, technology, managerial requirements and marketing. Technically viewed, an entrepreneur has to have qualities of motivation, managerial skill, technical support and the conceptual framework at his command. Entrepreneur is not merely a capitalist. It is a social responsibility function. Playing the role of initiator, coordinator, it is ensured that the targeted group of people are attracted towards the product to boost economy. Many studies have revealed that every entrepreneur may be a child of parents in comfortable financial circumstances but entrepreneurs do not form a social or economic class as such. They belong to all classes and categories. They have a few common psychological attributes such as (i) need for achievement, (ii) desire for responsibility, (iii) desire for risk, (iv) confidence for success, (v) greater initiative and energy than in an average person, (vi) future orientation, (vii) skill in organisation, (viii) attitude towards money. Besides these, education, family background, individual personality and environment contribute to the success of an entrepreneur. With his risk focused and opportunity-focused multiple approach the organisational skills get profitably combined with imagination and foresight. All these qualities and functions apart, entrepreneurial challenge continues to have vast social ramifications. It is not merely a personal ambition but a formidable socio-economic challenge.

In India where culture of consumerism is of late picking up and where the cities are attracting greater flow of migrant population because of increasing pressure on agricultural land, even there, women entrepreneurship continues to be a bleak area. Despite our broadbased and secular education religious instruments and procedures have survived to discourage the initiation and participation of women in any economic initiative. Despite a number of social thinkers and reformers with different schools of thought and underlying common code of ethical values, total emancipation has not taken place. When we look back and reflect, the under-developed picture of women in the social scenario still stalks our imagination. We simultaneously continue to rever and ridicule the role and status of women. A scientific temper and education combined with humanism for her empowerment so as to put her in proper perspective is still not uniformally available. Though political institutions keep on projecting a social format for the encouragement. and programme of action to

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Dean of Colleges-cum-Director, College Development Council, Himachal Pradesh University, Shimla.

rehabilitate her status, it is still felt that she has to be better placed.

Indian government has a number of programmes for protection of women—their welfare and their socio-economic advancement. Family and Child Welfare Programmes, Nutrition Programmes, Protection Homes, Rehabilitation Centres for Destitute Women, Integrated Child Development Schemes, Integrated Rural Development Programme, Development of Women and Children in Rural Areas and Training of Rural Youth for Self-employment are a few in the social package for the improvement and empowerment of women. It is typical that in our villages women lack settlement of intelligentsia, amenities, incentives and initiations. Indian Panchayats are an old base of our social and political structure. These have yet to come forward as a perceptible action group for cooperative entrepreneurship to solve economic and social problems at the grassroot level. Indian rural background may not be a purveyor of set ideas but it presents a fair picture to a connoisseur of culture. It holds a rich potential for agri-based entrepreneurship. Democracy in a vast country like India is a qualified triumph. Giving employment or self-employment to everyone is a mixed dream. Production of goods and services improves living standards besides contributing to economic development. Economic autarky is no longer possible. So exchange of goods and services is pertinent for survival. So why not women should also share this challenge? The way to prosperity lies through a corporate venture in women entrepreneurship which alone can ensure that people are not distanced from their own development. Women have not to be the cold recipients of others' ideas. They can constitute a mighty upsurge of their belief with a repeated affirmation in democratic efforts directed to its development. It is accepted that there are as yet no consistent associations within women labour force participation.

Women have a number of constitutional provisions regarding equality. They have human rights, social rights and economic rights. But the constitutional provisions and provisions of law can be objective realities only when they are availed of by our women in the establishment of justice, thereby establishment of a new social order based on equality and mutual respect between men and women. Many improvements spearheading their cause, because of their elitist reason have failed to achieve their goals in creating the mass base of awareness among women. Usually our discussion to involve women to improve their status and share in development begins and ends in their rights in marriage, divorce, property and other gender-specific problems. Notwithstanding this, our concern for women empowerment continues to be great. While our education system has to play the required interventionist role, women entrepreneurship is an area which has to be encouraged seriously. It is agreed that women have to play an equal and influential role in all our social activities. Sensitivities have to be generated to invite them to entrepreneurship as a social call with feasible strategies devised to that goal.

In Indian society from times immemorial there has been a kind of stratification into religions and regional sections. There has been a sharp dichotomy between academics and economics while the women continue to be linked with the word "house wives". Inspite of their numerous liabilities and social actions entrepreneurship cannot merely be reserved as a male domain. Inequitous value system divided by class, religion, culture, social stratification etc., in a pluralistic society cannot be permitted to survive. In our historical perspective, women have exhibited inextricable blend of culture and courage to show their vitality, valour, ingenuity and presence of mind. So there can be no reason why there should be gender-specific prejudices against their inclusion in our development effort. We come across glaring disparities and aberrations in our perception of development. Development in itself is the main concern of our government and civilisation. It is a state of mind, a set of values and an urge for something qualitatively new. It is the goal of all our education and economic activity. Improvement in our villages and cities, fields and factories are signs of development. Greater exploitation of our resources with improved production, credit delivery systems, investment outlets, marketing possibilities, labour and production in a competing market contribute towards development. In a society women are the co-sharers of the fruits of development. So they have to be identified to be given the suitable responsibility share. Their stereotyped mother dominated, socially backward status has to be changed through suitable management strategies such as simulated models of risk taking, organisational behaviour, socio-economic systems. There could be long term strategies for this as also academic and vocational modules to create awareness among them. Besides facilities, psychological packages and training facilities could be offered to eliminate situational deterrents. The entire proposition may seem debatable but we should not be despair-oriented simply under the impression that women are tension prone or physically weak or are poor or have other social inhibitions. In fact, a synergic view on the compound package through an inter-woven network of objects for cultivating confidence skills and risk factors is needed for making them successful entrepreneurs. The present asymmetry that exists between the planners or the decision makers and the implementors of the design and schemes has to end so as to combine the two functions.

Every entrepreneurial effort at present inhibits women from advancing in their entrepreneurial work force. Perhaps the managerial determinants have been prescribed by an overwhelmingly male dominant attitude over the ages. There is no doubt that the task of motivating and promoting women entrepreneurship is still an unexplored issue. It has no social and political support. This situation continues to shape their behaviour and psychological disposition. The economic stagnation can be mitigated through the involvement of women as entrepreneurs. Their proximity to power would come through their initiation and involvement in overcoming situational determinants for development. In a democratic set up equality of opportunity contributes to common growth and plugs gaps and disparities to the overall national development. In such a situation female entrepreneurship side-by-side with male participation can alone ensure socio-economic stability. Overcoming the situation of uncertainties, risk factors and uncertain decision with a sense of innovation, finesse and firmness, women can be counted upon to stabilize.

We have 1.4 million small industries manufacturing 5,000 varieties of products. Their quality is not up to the mark because design of equipment and process of technology are old. There is a generation gap. Women cooperative entrepreneurship in updating these can improve their quality to do better in a competitive market. For this, numerous measures such as assistance from Banks, Small Industries Service Institutes with their organisational programmes, Science and Technology Entrepreneurs' Parks in universities in liaison with Industries Departments, leasing systems, incentives, economic packages from government for raw materials, awareness generation through vocational education in colleges and universities, consultancy services, training, research and development, for entrepreneurs, are necessary. Small scale enterprise with the above support system for women, can be a great success as in these there is no divorce of ownership from control and can yield encouraging results.

Looking to the demand patterns and while going in for production procedure for goods and study benefits of competition and technology updating, women entrepreneurship can be encouraged for production of consumer durables. The incentives can be given in the field of plastics, ceramics, electronics, computer software, telecommunication parts, laboratory work, agri based products, handlooms, handicrafts, kitchenware, food articles etc. The male entrepreneurial syndrome resting on physical, environmental, financial and other factors cannot long be permitted so as to ensure uniform socio-economic development of the country. Myths, stereotypes and barriers have to be reviewed and removed as there are irrelevant and inappropriate today. Seven out of 10 women work now out of pressing economic needs and they continue to contribute in the fields of science, technology and arts in a fair measure.

In 62 countries exercise has been initiated on educational planning and administration in the context of recent explosion of knowledge. Education has expanded in different fields. As a catalyst of development it is in itself now a discipline of study. Generation of knowledge, its dissemination and research are the primary functions of education. Where there have to be training courses, awareness courses updating courses and academic courses to cater to the needs of different categories of persons, education has the equity dimension also, i.e., it has to cater to all men and women so as to make them jointly contribute to the national development. Its material has to be relevant, its communication strategies a mix of teachers and designers to create a new work ethos. This has not merely to cater to the cult of consumerism but has to create awareness as a participative spirit in all developmental efforts. Its delivery system has to be effective. So education has also to play a significant role to change our perception of the role and status of women in our economic activity. So a change in the gender role approach towards women can bring about the desired economic function in their role and status. This would mean their empowerment and participation in the development effort towards the country. □

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Education and Development

"It is the experience in the field of human resource development that modern industry and modern agriculture cannot be efficiently run without educated and skilled manpower. We have to solve these problems in the country and the State by giving priority to the removal of illiteracy and developing skilled manpower needed for various crops. It may not be possible to achieve complete success in solving problems on economic front unless we give priority to the problems of human resource development," said Shri Annasaheb Shinde, Vice-Chairman, Maharashtra State Planning Board, Bombay and a former Minister of State for Agriculture, Govt. of India. Shri Shinde was delivering the Convocation Address at the Sixteenth Convocation of the Konkan Krishi Vidyapeeth, Dapoli. Excerpts

Convocation

In spite of the tremendous increase in population, India could attain self-sufficiency in foodgrain production and this is considered as the most important event during the post-independent era in our country. This has a special significance. The success on agricultural front is something of which everyone engaged in the field of agriculture should feel proud. Countries like Soviet Union and some 20 to 22 countries in the African Continent have experienced how nations are trapped in difficulties if they are not self-sufficient in foodgrain production. It is highly essential now to broaden the base of our success in Green Revolution and it is also necessary to achieve success in Green Revolution and it is also necessary to achieve success in Green Revolution in areas other than foodgrain production.

I must make a special mention of the fact that your Agricultural University is making valuable contributions to the field of agriculture, veterinary science and fisheries. It is explicit that crops like mango and cashew will gain more and more importance in the economy of the Konkan region. Your University has done outstanding research work on these two crops. The University has particularly widened the scope for cashew cultivation by developing new cashew varieties. With these varieties, cashew cultivation will occupy a unique position in the economy of the Konkan region. I profusely congratulate the scientists and also your University for the outstanding research work done in cashew cultivation. Mango crop is also unique in its importance in earning foreign exchange. The University should give top priority to solve the problems and difficulties encountered in the export of mango. The Alphonso mango is a precious gift of the nature to the Konkan region. There is a lot of scope to increase the production of mango varieties like Alphonso and Ratna. You have set a target of bringing an area of hundred thousand hectares under mango cultivation during the next 25 years. I would like to suggest you to reconsider your target and set a more ambitious target. In order to achieve these objectives, the planting material would be required on a very large scale. Since this is a technical aspect, I would urge the University scientists to guide and advise the State Government. I feel that the Government of Maharashtra should be able to set a goal of earning foreign exchange of Rupees 500 crores during the next 10 years from crops like mango and cashew. However ambitious the programme may be, I feel that it is the need of our country to complete it successfully taking into consideration the serious problems confronting our nation. Intelligent research workers of the Konkan Krishi Vidyapeeth and the State Department of Agriculture should be able to jointly accept this challenge. It is possible to make use of the experience of a country like Chile for her success in cultivation of fruit crops.

Chile is a small country in South America. This country launched a very ambitious programme of cultivation of fruit crops some 15 years ago. A massive programme of Agricultural Extension was also implemented by that country. Until 1976-77 the country exported fresh fruits and processed fruit products worth only Rs. 40-50 crores per annum. However, Chile implemented the programme with indomitable determination. She developed orchards of fruit crops over lakhs of hectares and within a short period of about 13 to 14 years, the country is now exporting fruit products worth more than Rs. 1000 crores. The Konkan region certainly has more potential than Chile and I feel that the State Department of Agriculture should implement a similar programme with the assistance of the Konkan Krishi Vidyapeeth. Such a programme will also help increase the prestige of the University.

Today, some serious problems are cropping up on agricultural front in our country. I wish to place some of my thoughts: concerning these problems. I would like to appeal to you all to please think of the ways and means of solving these problems.

It is a universal truth that as the economy of a country develops, the share of agricultural production in national income decreases. The law of economics have to be essentially similar all over the world. At the national level during the first decade after independence, the share of agricultural production in total national income was nearly 60 per cent. It has now come down to 32 per cent and during the next decade, it is expected to further come down to 18 per cent. In other developed countries of the world, the share of agricultural production in national income is about 2 to 4 per cent. However, in developed countries, while the share of agricultural production in national income decreased, the population pressure on agriculture also gradually decreased. In India or in the State of Maharashtra, the population pressure on agriculture does not seem to be decreasing.

There are a few other basic problems in the field of agriculture. As compared to the year 1970, the agricultural producers now get much less return for their produce in comparison to prices of the industrial produce or the inputs needed for agricultural production. The Agricultural Prices Commission of the State of Gujarat has made a thorough study of this problem and has drawn the conclusion that the farmers in the State of Gujarat now get 20 and 40 per cent less returns as compared to 1970 in cash crops like cotton and sugarcane, respectively. It is explicit that the farmers all over the country have to face more or less similar adverse conditions as in Gujarat and Maharashtra. The farming community by and large is leading a very miserable life and the situation explained above must be only adding to their poverty and misery.

About a year and a half ago, the Reserve Bank of India had appointed a Study Group under my Chairmanship. This Study Group has done very valuable work by throwing some light on some important problems in agriculture. The Study Group has drawn a very important conclusion that there has been an increase in the cost of agricultural production. However, there is no comparative increase in the efficiency of agricultural production. Not only this, the index of productivity of inputs has decreased by 40 per cent during the last few years.

Since 1980, the capital investment in public and private farming has been decreasing. Similarly, the process of capital formation has also not remained satisfactory. There has also been a decrease in it. It has therefore, become necessary to reexamine the basic policy issues about the economics of agriculture as a profession. In agricultural production, the seeds, chemical, fertilizers, pesticides, implements, electricity, etc., are important inputs. But knowledge and particularly the knowledge of agricultural science and land and water management is the most important input. I do not feel that we, as a country have had an intense understanding of this input. It will never be possible to satisfactorily solve all the problems in agricultural production when there is 60 per cent illiteracy in the country and more than 50 per cent in the State of Maharashtra. Under such a situation, most of the capital investment may go waste. It is the experience in the field of human resource development that modern industry and modern agriculture cannot be efficiently run without educated and skilled manpower. We shall have to solve these problems in the country and the State by giving priority to the removal of illiteracy and developing skilled manpower needed for various crops. It may not be possible to achieve complete success in solving problems on economic front unless we give priority to the problems of human resource development.

Today barring a few exceptions, the educated youth is not inclined to take up agricultural profession. Why is the educated manpower not prepared to enter into agricultural profession although this profession increasingly needs it? What policies are responsible for such consequences? It is necessary to make our inferences extremely clear. I feel that the present policy to deprive agricultural profession of the benefits of industrial revolution, needs to be seriously reconsidered. It is presumed that the urban population should get the civic amenities like scooters, motorcycles, other automobiles, railway, aeroplane, etc. However, our approach that the farmers must use only bullockcarts is a matter of treating the farmers as secondary citizens. And there is a room to believe that through such a thinking, the Government is maintaining such a price structure of machinery needed for agriculture which the present agricultural economy cannot afford. It is the duty of the Agricultural Universities to develop a thinking and a theoretical background such that the policy makers and the administrators will change the present policy and it will create an atmosphere in future so that the educated youth will voluntarily enter into agricultural profession.

Due to the increasing population pressure on agriculture, the Indian agriculture has turned into lakhs of small and economically nonviable fragments. The authentic data about this are available. In the State of Maharashtra 10 per cent of the land is converted into economically

(Continued on page 15)

Environmental Appraisal and Management in North-East India

A Seminar on Environmental Appraisal and Management in North-East India was recently held under the auspices of the Department of Earth Sciences, Manipur University. Professor V.K. Ahluwalia, Vice-Chancellor, Manipur University, in his inaugural address emphasised the need for people's participation in the proper upkeep of the fragile and sensitive eco-system of the north-eastern region and stressed on sustainable development programme for efficient utilisation of natural resources. In his key-note address Professor Jagdish Singh of Gorakhpur University highlighted the problems of ecological imbalances in the light of the economic growth scenario and suggested measures for the eco-development of the North-East India. Professor H.R. Betal of Calcutta University in his presidential address emphasised the role of Geographers in environmental management and urged the people, planners and the government to take suitable measures to arrest deforestation and environmental degradation.

Dr. M. Nara Singh, Hon'ble Minister, Science, Technology and Environment, Manipur, in his valedictory address expressed his concern about the environmental degradation in the north-eastern region, particularly in Manipur state, jeopardising the very existence of human society. He stressed the need for protection and conservation of the environment at all costs. He emphasised the need for inclusion of Environmental Studies in the academic curriculum right from the school to the University level to arouse awareness among the youth about the ecological problems and need for eco-development. He assured of the governmental assistance for environmental researches and projects.

Professor V.K. Ahluwalia, who presided over the valedictory session, expressed happiness for the governmental awareness about the environmental situation and hoped that the joint efforts by the Government, University, academicians and environmentalists would bring desired improvements in this regard.

The Issues

After detailed deliberations the following issues emerged:

(1) Environmental Studies should be as much interdisciplinary as possible.

(2) Conservation and protection of environment should get priority for the survival of human society.

(3) An overall environmental consciousness and environmental education should be imparted through the formal curriculum of the schools, colleges and universities.

(4) At the policy level, the forest policy and wetland management policy should be reconsidered in the light of the socio-geo-politico-economic dimensions of the society. For this purpose a restructuring of the land management, water resource management, energy management etc. policies were urgently needed.

As the environment not only ameliorates the economic life but also provides means of livelihood to the people living under various environmental conditions, it was felt that a sound and effective policy for environmental management needed to be evolved especially for the north-eastern region.

Recommendations:

Accordingly, the Seminar put forward the following recommendations suggesting an action plan in the light of the deliberations:

1. The new Forest Policy (1988) needs thorough review as it has ambiguities concerning the roles of three parties involved; viz. the people, the state and the industry. A clear-cut policy must be chalked out to give a balanced and reasonable weightage to the participants by exercising a low-intensity eco-system management, nature or *in situ* conservation in virgin woodlands, finalising the legal ownership of forests and devising forest-based programmes in consonance with the socio-economic fabric of the tribal culture.
2. To control the practice of shifting cultivation, alternative means should be chalked out without hurting tribal sentiments and by providing other avenues of income, such as livestock, poultry, dairy, sericulture, horticulture and cottage industries.
3. To protect the wetlands from fast degradation and regulate their hydrological cycle, there must be extensive afforestation programme for the catchment areas of wetlands, controlled exploitation of fish, dredging of lakes and temporal clearing of aquatic weeds.
4. The lakes, beels, swamps and marshy tracts, which at present come under various departments, may be put under the Department of Science, Technology and Environment for their proper management and integrated eco-development.
5. To check the present uncontrolled environmental pollution, there is need to control excessive use of pesticides, weedicides and fertilizers, and to stop the emissions of harmful gases and discharge of factory effluents in

waterbodies; more power should be given to pollution control boards and local authorities.

6. The universities in the north-eastern region of India should establish an advanced centre for indepth study of air, water and soil pollution with financial assistance from the state governments, U.G.C., C.S.I.R., D.S.T. and other agencies.
7. Since, there can be no eco-development without active participation of the people, there is an imperative need to generate awareness about the degradation of various eco-systems and pollution hazards among the people through formal education from the primary to university level by introducing environmental education in the curriculum, and non-formal education programmes. There should be a sustained effort to ingrain the concept of 'social fencing' and involvement of voluntary organisations in the development process.
8. A sound administrative set-up for environmental management at local, regional and state levels is necessary to chalk out the eco-developmental programmes and implement them through suitable legislative measures. A mutually agreed cooperation plan among the seven states of the region is a prerequisite for the smooth running of the eco-developmental programmes.
9. Legislative measures may be taken against encroachment on agricultural land for non-agricultural purposes.

Sponsored by the Department of Science, Technology and Environment, Government of Manipur, the seminar was attended by over 70 delegates from Calcutta, Kanpur, Gorakhpur, Gauhati and Shillong (NEHU) universities, besides the delegates from Manipur University.

Monsoon Trough Boundary Layer Experiment (MONTBLEX)

The Centre for Atmospheric Sciences of the IIT, Delhi is taking part in the DST sponsored All India Coordinated Programme on "Monsoon Trough Boundary Layer Experiment", acronymed MONTBLEX. It is an intense multi-institutional effort intended to probe the atmospheric boundary layer (ABL) over the monsoon trough region of the Gangetic plains. The programme may be described as one of the largest weather projects organised from India and certainly among the largest boundary layer projects of the world.

Under the Programme 4 Micro-meteorological Towers (30 metres each) equipped with fast response instrumentation and computer control data acquisition system for recording the mean and fluctuating wind speed, wind direction, temperature and humidity in the boundary layer have been set up at IIT Delhi, IIT Kharagpur, CAZRI Jodhpur, and BHU Varanasi. It is an unique attempt by a team of scientists for taking large scale field observations in integrated manner under the disturbed weather conditions associated with monsoon. Complementing the Towers will be extensive observations of the state of the atmosphere with an array of sophisticated sensing systems like sodars, radar, tethersonde, radio-sondes, and traditional ground observations from India Meteorological Department's observatories at the tower sites and existing network. Simultaneous cruises by the ships of National Institute of Oceanography in the Bay of Bengal and aircraft flights over the trough region by the Indian Air Force are also being carried out.

The field phase of the Experiment has already started at IIT Delhi from June 1, 1990 and will continue up to September 30, 1990 Dr. S.K. Dube of the Centre has been nominated by the DST as the Project Coordinator for the Meteorological Tower installed at IIT Delhi campus while Dr. U.C. Mohanty of the Centre is coordinating the data management and the modelling component of the Project at the Institute.

Orientation Course at Pondicherry University

The Academic Staff College of the Pondicherry University organised its first orientation course in which 15 Lecturers and Assistant Professors from Pondicherry University, Annamalai University, Tamil University, Mangalore University, and universities of Haryana, Orissa, Madhya Pradesh, and Himachal Pradesh participated.

During the 4-week programme, lectures, seminar, field visit, project work and open sessions were organised to improve general awareness about social, economic and other problems, develop teaching competence, update knowledge in subjects and improve personality and management abilities.

Besides certificates, books worth Rs. 200.00 were presented to each of the participants on the completion of the course.

Environmental Biology Academy to Meet at Aurangabad

The 11th Annual Session of The Academy of Environmental Biology is proposed to be held from 21-23 December, 1990 at Marathwada University, Aurangabad. On this occasion a symposium & BRPM Competition on "Environmental Pollutants and Resources of Land and Water" are also proposed to be organised.

The symposium and BRPM Competition will not only provide a forum for the exchange of research findings but will also offer a viable opportunity towards promotion of mutual understanding among the scientists and young researchers associated with Environment & Toxicology.

The topics proposed to be discussed include (1) Assessment of Environmental Parameters and Pollutants; (2) Impact of Environmental Stress on Marine Edible Resources; (3) Impact of Environmental Stress on Fresh Water Edible Resources; (4) Impact of Environmental Stress on Terrestrial Animal Resources; (5) Impact of Environmental Stress on Plant Resources; (6) Impact of Industrial Discharge on Living biota; (7) Impact of Domestic Discharge on Living biota; (8) Analytical Aspects of Environmental Pollutants-Case Studies; (9) Evaluation of Hazardous Substances from Land and Water; and (10) Aspects of Monitoring, Environmental Management, Environmental Education and Lagislation.

Further details can be obtained from Dr. U.H. Mane, Org. Sec., 11th Annual Session AEB, Department of Zoology, Marathwada University, Aurangabad-431 004 (M.S.) India.

Heterocyclic Chemistry in Nature and Industry

A National Seminar on Heterocyclic Chemistry in Nature and Industry was recently organized by the Department of Chemistry of the Gauhati University. Emeritus Professor D. Nasipuri, who delivered the keynote address, dealt with all aspects of recent trends in heterocyclic chemistry including the present research status of India. He emphasised that more and more national seminars on heterocyclic chemistry should be organized frequently in India to cope with the advances in this important area of organic chemistry. Prof. D.P. Barooah, Vice-Chancellor of the University delivered the inaugural address.

Sponsored by UGC, DST, DSTE (Assam), CSIR, DAE and other organizations, the seminar recommended the establishment of a Centre of Natural Products Research as a constituent unit of Gauhati University to explore the abundant medicinal plants of this region for the benefit of the mankind.

News from Agril. Varsities

Biotechnology and Crop Improvement

Dr. S. Jayaraj, the Vice-Chancellor of Tamil Nadu Agricultural University (TNAU), in his presidential address at the valedictory function of Summer Institute on Biotechnology and Innovative Breeding for Crop Improvement recently organised by the University, pointed out the need for biotechnology research and its role in increasing agricultural production in the years to come. The application of genetic engineering in pest and disease management was of great importance in enhancing productivity by reducing losses due to pathogen infection and insect attack. Entomopathogens like baculoviruses could be genetically improved by selecting for desired trials or by using the latest techniques of genetic engineering. Recombinant DNA technology offered greater scope for construction of novel NPVs, having single gene encoding proteins or peptides that were lethal or disruptive to insects. There was scope to develop viral insecticides with multiple modes of infection. There was also scope for mass production of NPV by insect tissue culture. He pointed out the availability and testing transgenic plants for the pest resistance developed in tomato and cotton and their possible use. Significant progress, he said, had been also made in the development of varieties resistant to viruses in crops like tobacco, potato and tomato for future of pollution free and pesticide residue free situation.

Plants regenerated from somatic cells using tissue culture were not genetically uniform but displayed significant variability. Such variability was exploited for the development of resistance to tomato mosaic virus (TNV). Toxins produced by pathogens were important tools to select calluses from which resistant plants could be regenerated. Protoplast fusion technology helped to some extent in the development of superior strains over parents in the control of several soil borne pathogens. Chitinase enzyme had been implicated in the biocontrol of many soil born pathogens.

Though integrated pest management (IPM) strategy was available for many crops, chemical pesticides dominated the whole IPM programme resulting in severe environmental hazards like pesticide residue in food, fodder and feed. In such cases, use of genetic engineering and molecular biological approaches in developing high yielding crop varieties with resistance or tolerance to pests and diseases would be ideal.

Thus the biotech methods are problem solving, cost effective, environmentally safe and non-traditional and novel in genetic manipulation. To harness such multiple benefits, TNAU had embarked upon the Postgraduate higher education in biotechnology and molecular biology with due support of Bioinformatics–information system approach.

Dr. S. Jayaraj stressed the need

for intensive biotechnology research to generate relevant and usable knowledge base for further increasing the productivity and for manpower and also to organise symposium and seminar to share and exchange ideas. The Vice-Chanellor informed the participants that to promote the education and development in biotechnology in agriculture, TNAU had established two endowment lectures in Biotechnology with the support of funds from the SPIC and the Madras fertilisers.

Dr. A. Gnanam, Vice-Chancellor, Madras University, in his keynote address observed that the modern agriculture, which was developing since past two thousand years itself was a "Biotechnology". He emphasised broadening the biotechnological tools for increased application in present day agriculture, which was so far considered to be a difficult one. The trends in biotechnology as related to agriculture are:

— gene amplification, increasing the photosynthetic efficiency and biological nitrogen fixation,

— field testing of the genetically engineered organism,

— structural and functional aspects of the stable gene expression and other approaches to increase the biomass production and grain yields and of late, antisense agents.

Inspite of so much of advances, the crossability barriers envisaged in the wide crosses had to be overcome. The new technologies like embryo rescue could help. Biotechnology had to give positive solution for solving the present difficulties and the problems.

He said that in the immediate years to come, the Biotechnological approaches in the field of agriculture and animal sciences needed to receive priorities and emphasis as in the field of microbiology which had already received gains through biotechnology research. Possibilities for practical utilisation and personnel specialisation were to be identified to develop relevant technologies and critical manpower development, he added.

He urged the scientists to build facilities for chromosome manipulation and for producing transgenic plants and bringing them out of lab and maintaining them in glass house and in the fields. In fact, he opined, TANU was in a well developed status to tackle all these problems related to crop productivity.

Dr. K. M. Marimuthu, Vice-Chancellor, Bharathiar University, distributed certificates to 30 participants of the Summer Institute on Biotechnology and Innovative Breeding for Crop Improvement and expressed his appreciation to the TNAU for conducting this kind of Summer Institutes and other workshops in the frontier sciences.

As a well-known biotechnologist involved in human welfare, he felt that there was need for intensifying the basic research in India. The biotechnology as a tool could cut-across the barriers of species and genera and could help integrating novel genes from unconventional sources. He, however, felt that our society should be oriented in such a way that new frontier research was accepted and old thoughts were not repeated. He desired that such training programmes should be conducted very often by ICAR and UGC for updating the scientists' knowledge.

Dr. S. Nagarajan, Asstt. Director General, Indian Council of Agricultural Research, in his felicitation address pointed out that the improvement of crops was continuous and never ending process. To get higher yields, concurrent or alternatives to the existing technologies were necessary and plant biotechnology was an effective technology. In the field of higher crop production, he said that improvement on yield itself could be obtained by enhancing higher yield potential, resistance to biotic and abiotic stress and for quality. The Department of Biotechnology and ICAR offered assistance and helped both by mutually sharing their institution as well as money grants to conduct basic research which had relevant application in crop improvement. He spelt out that in the next 10 years the nation had to achieve the quantum jump—what we had achieved in 25 years in foodgrains. That could be done only by biotechnology by compacting breeding cycle and overcoming the barriers. He felt that the Summer Institute on Biotechnology and Innovative Breeding for crop improvement organised by TNAU would help develop such ideas for speeding up the programmes in this country.

Dr. S. R. Sree Rangasamy, Director, School of Genetics, in his welcome address requested the participants to capture the knowledge explosion in the frontier sciences in this modern biology or the biotechnology for the application in research in increasing the agricultural productivity. The TNAU, he said, was fast in developing facilities and broadbasing the institutional structure to provide relevant research in biotechnology and manpower development in the field of crop improvement, crop production and crop protection through the novel techniques of biotechnology and innovative breeding approaches. The knowledge based expertise and experience gained in this field in TNAU and elsewhere should be made available to the benefits of teachers and scientists in this country. Over 30 scientists from various agricultural Universities and ICAR Institutions participated in the Summer Institute.

Women in Agriculture

Dr. S. Jayaraj, the Vice-Chancellor, Tamil Nadu Agriculture University (TNAU) highlighted the action plans under TNAU project for women in agriculture involving the lady students and teachers in the different campuses and research stations of the University throughout the State. They will train the farm women in modern crop and livestock production technologies and undertake diagnostic services to provide much needed soil plant and animal health care in the villages around the University Centres. In that process, they will also identify the strains in increasing crop and animal productivity and make suggestions to overcome them then and there. This project will be linked with the on-going Village Stay Programme for all the undergraduate students, and also with the Tamil Nadu Women in Agriculture Programme (TANWA) of the Department of Agriculture. In order to generate employment opportunities in rural areas the farm women will be trained in production technologies for raising milch animals, sericulture, honey bee keeping, production of biological control agents, fish production, seed production, conversion of farm wastes into valuable manure, processing of fruits and vegetables, etc.

There are large number of women farm graduates in agriculture and horticulture in the rural areas and remain as house-wives without much use of their knowledge and skill in agricultural sciences. With a view to use their services, it is proposed to organise orientation and training programmes in the TNAU research stations and colleges in different districts, so that in their leisure time they can train the farm women and labourers in the adoption of improved production technologies.

A detailed study made by the Department of Agricultural Extension and Sociology in TNAU indicates that it is the farm women who decide the choice of crops, animals, farm operations, marketing, etc. These farm decision makers have not been reached in full measure since the extension functionaries in the existing system are not adequate to perform this important responsibility.

The TNAU project will also provide opportunities to the lady students in farm colleges as well as the women farm graduates remaining unemployed in starting self-employment, small scale projects in villages with assistance from Nationalised Banks, Co-operatives, etc. The TNAU has strengthened the capabilities in many of the research stations and colleges to provide this facility. A Committee of women teachers and senior officers of the Department of Agriculture is being formed which will monitor the progress made in the TNAU project at quarterly interval.

News from UGC

INSAT-1B Programme of UGC

Between 23rd July to 31st July, 1990 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 Noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission
6.00 a.m. to 7.00 a.m.

23.7.90

"Quasi Crystals-Beyond Conventional Symmetry"

"Business Finance"

"Fresh Water Fish Farming–Induced Breeding"

24.7.90

"Chemical Kinetics-IV"

"Change for the Better"

"Worldnet Medicom-86-I"

25.7.90

"IRS-1A Applications"

"Monsoon Circulation in India"

"Silk for the Desert-I"

26.7.90

"The Quick Brown Fox Jumps Over a Lazy Dog"

"Soil Erosion"

"Poetry in Indian English"

27.7.90

"Apollo-14-Mission to Fra Mau Ro"

"Motivation"

"Let Us Save Ourselves: Pollution-I"

28.7.90

"What is a Spastic-II"

"An Obligation for Safety"

"Origin of Music"

29.7.90

No Telecast

30.7.90

"OMNI-The New Frontier: Fusion, Distant Galaxies"

"Keynesian Economics"

"Significance of Ocean Survey in Fisheries"

31.7.90

"Heat Disorders"

"The Pursuit"

2nd Transmission
12.00 noon to 1.00 p.m.

23.7.90

"Levers"

"Management-4 : Organisation"

"User Land Development"

24.7.90

"Instrumental Techniques"

"Functioning of Video Casssette Recorder"

"Hip Joint Replacement and External Fixation"

25.7.90

"Solar Research-III"

"Forts of the Deccan-III : Golconda Forts"

"Sprouted Foods-Food of the Future"

26.7.90

"The Chip That is Changing the World"

"Reflections on Poetry"

27.7.90

"Reaching Out to the Heavens"

"Miraculously My Own"

28.7.90

"Communication Through Mime"

"Kannada Yakshaganam"

"Ready, Get Set, Go-A Programme on Sports"

29.7.90

No Telecast

30.7.90

"Elasticity-Stress and Strain"

"Management-5 : Organisation Aids"

"The Challenge of Ocean"

31.7.90

"Heat Disorders"

"The Pursuit"

National Fellowships

The University Grants Commission has advised teachers in the universities and institutions deemed to be universities to approach their respective institutions for the award of 24 National Fellowships. The scheme of National Fellowships evolved by the Commission enables teachers of outstanding eminence to take a year or two off from their normal duties to engage themselves exclusively in research and writing the results of their studies. The fellowships are offered to Professors and Readers in the universities who are below the age of 55 years at the time of their nomination or who can avail of the scheme for at least two years prior to their superannuation in accordance with the university rules.

The fellows selected for the award are eligible to get, besides their normal salaries and allowances, a monthly fellowship allowance of Rs. 500, and a contingency amount of Rs. 5,000/- per annum for secretarial assistance, travel, and contingent expenditure.

During 1989-90 the Commission awarded the fellowships to four teachers. With this, six scholars will be now availing the national fellowships.

Assistance for COSIP in 16 More Colleges

The University Grants Commission (UGC) will provide financial assistance to 16 more colleges under the College Science Improvement

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Programme (COSIP) for bringing about qualitative improvement in the teaching of science subjects at the undergraduate level. These colleges will be in addition to 303 colleges which have already participated in this scheme upto March 31, 1989. Under the scheme a total grant of upto Rs. three lakhs is provided to each selected college for a period of three years.

The COSIP scheme strives to accelerate the capabilities of undergraduate science students and initiate a process of continuous self-renewal through an integrated approach and improvement in the methods of instruction, laboratory experiences and teaching materials including introduction of new or redesigned courses, examination reforms, and orientation of teachers.

In order to select a college for participation in the COSIP scheme an overall assessment of the college is made on the basis of factors like student, staff ratio and number of Ph.D. teachers in the college, etc. An advisory committee at the college level under the chairmanship of the principal is constituted to continuously monitor the implementation of the programme.

News from Abroad

Seniors in Higher Education

The XVth Conference of the International Association of the Third Age Universities will take place in Hull, Quebec, Canada from September 21 to 23, 1990. The theme of the conference is "Seniors in Higher Education: Opportunities for Collective and Institutional Development." The conference will discuss as to how do seniors in institutions of higher education contribute or might contribute to collective development; and (ii) which orientations or measures have institutions of higher learning taken or should take in order to ensure accessibility for seniors.

The topics proposed to be debated include: (i) Economic Development; (ii) Development of Educational Policies; (iii) Research and Study Programmes Development; (iv) Cultural Development; (v) Development of Educational Services for Seniors; (vi) Social Development; (vii) International Cooperation and Development; (viii) Health Promotion Development; and (ix) Seniors Integration into Higher Education Institutions.

Further details can be had from Mr. Bernard Dumouchel, Director, Community Services Bureau, P.O. Box 1250, Station B, Hull (Quebec), Canada J8x 3x7.

Understanding the Defiance of Youth

(Continued from page 1)

armed pressure and the fear of becoming unpopular with the mob. But how are we to help them keep their integrity when confronted with gang and mob-pressure; what training are we to give them to stick to what they believe in, even in defiance of the opinion of the crowd. Actually a lot of behaviour usually termed defiance is exactly the opposite. A sixteen year old boy who participates in an incident of vandalism because he is afraid of being called a sissy is not a defiant child. He is a coward, an over-conformist, a spineless lickspittle for public acclaim. His problem is submission rather than defiance.

Quite often youthful defiance is like the process of regurgitation. If you stuff nails down somebody's throat, he will rebel by choking reactions to ward off the dangerous intrusion. Vomiting under such conditions is not symptomatic of illness. On the contrary, it is the defence of a healthy organism against hurt from outside. A lot of youthful defiance belongs to this category. It is not the overcropping of a corrupt, or morbid personality, but the defence of a healthy one against the kind of treatment that should not happen to a dog, but often does happen to children. Such reactive defiance calls for consideration not only of what's wrong with the child, but also of what is wrong with what we are doing to him.

There is yet another kind of defiance which is unprovoked. If a well loved and well cared child suddenly starts kicking and hitting when asked to go to school, his behaviour towards you looks dangerously, rebellious. But in fact his reaction is due to a deep-seated fear, a sickness, an anxiety neurosis. This is the affliction, not the disrespectful disobedience which he displays when confronted with it. And again, some defiant acts are merely accompaniment of any of the variety of mental diseases. The sufferers in such cases, have no thought of being spiteful. In such wrapping type of defiance, the only thing to do is to tackle the disease behind the wrapping. All other efforts are useless.

There is yet an other type of defiance which results from defiant ego. Children with defiant ego act destructively any time they so desire because they enjoy it. If they want their fun, they are going to have it. Either they have not developed that voice from within that would make them feel bad about fun that is unjustly had at somebody else's expense, or they have developed the skill to ignore that feeling. This defiance can be called delinquency and treated as such.

The answer to the problem of defiant youth must be sought in the direction of more practice geared research, greater concerted effort toward the education of the public to the causes of defiance, and more courage to think straight even under the impact of panic and wrath. Mere raising a hue and cry will not decrease the youth defiance. □

Book Review

Authentic Source Book

Atma Ram*

Aggarwal, J.C. Education in India: Policies, Programmes and Development—Global Perspective. Delhi, Doaba House, 1989. Rs. 150, p. iii + 171.

Education is a world-based, continual process involving pursuit of self-excellence for public good. It is thus a wider phenomenon to be examined critically at times in relation to its impact at various levels. It calls for a comparative approach, an endeavour to study its operation in a larger context. It is in this respect that J.C. Aggarwal's **Education in India** is a timely and important publication. Here is a compendium of basic data about India's education system. It contains comprehensive information on education in global context.

J.C. Aggarwal has arranged his material in a systematic manner. His approach is meaningful; treatment of themes revealing. The book comprises three parts. Part I describes the developmental efforts made to make operative the thrusts of National Policy on Education 1986. It specifically relates to the period 1985-88 with a background of the past. This part also studies India's state of education in the context of Asia and the Pacific as well as other countries of the world.

Thereafter, the author concentrates on the comparative state of education in the countries of Asia and the Pacific. In the third part, he dwells on the state of education in 133 countries of the world. The book thus constitutes a viable assemblage of basic facts and figures on education.

First, the task of the author was very challenging and formidable. To collect sufficient relevant and reliable data is a difficult work. There is no uniform system of maintaining educational statistics. Here several authentic sources have been drawn upon. Second, the intrinsic indicators of development adopted are plausible, highly dependable—population, adult literacy, compulsory education, percentage of age-group enrolled, pupil-teacher ratio, public expenditure on education, and so on. Third, the material has been offered in a systematic and proper context. All this imparts a unique significance and depth to the volume, an intensity and relevance to discussions on various topics.

The book deals with various constituents of education. One is indeed impressed by its nature and scope. Aggarwal touches upon almost all aspects of education—after giving selected educational statistics of India in world context and state-context, he goes to the fifth All India Educational Survey. Thereafter, he includes worthwhile, concise yet insightful data-based observations on various aspects of education in India—structure, administration, modes, states and kinds of education, vocational education, adult education, women education, open university and distance education, financing of education, educational planning. In the second and third parts of the book, too, comprehensive data is made available through neat and broad-based tables.

Education in India, thus, presents at one place very reliable reference material. The author has worked hard to compile the facts and figures. The book will definitely serve as a handy, authentic source book to educators, educational administrators, planners and research scholars. It provides a lot of "food for future thoughts" and planning processes. Facts speak for themselves, and often speak louder than words. For example, 'Pathfinders in Modern Indian Education' contains most interesting useful information. In India, the infrastructure of education is very big.

However, the assemblage of the data serves as a fine indicator to think of what we were, what we are and what we can be.

J.C. Aggarwal with his vast and varied experience in the field of education and publications on education—with over 100 books to his credit—has made a veritable contribution to the cause of education. **Education in India** is an outstanding publication. Beautifully printed, finely brought out, the book is free from misprints. It should be of great help and interest to students, scholars, general readers, as also to planners, teachers, educational administrators and policy-makers.

**Joint Director (Colleges), Department of Education, Himachal Pradesh, Shimla-2.*

A Welcome Initiative

G.S. Sivia*

Journal of Physical Education & Sport Sciences. A bi-annual publication of Sports Authority of India, Lakshmibai National College of Physical Education (Publication & Information Unit), Gwalior. Volume 1, Number 1, September 1989.

One of the serious drawbacks of Physical Education and Sport in India—in fact, a hindrance in the way of its advancement—is that, there is almost a vacuum of published literature in this field. Initiative of the Lakshmibai National College of Physical Education (LNCPE) in starting this bi-annual publication is a step in the right direction. It is an appreciable attempt towards filling up this gap. Articles are in line with the recent research oriented trends. The topics discussed in the first issue, however, are mostly one dimensional and pertain to the study of human body as related to coaching. In this context, I am reminded of another publication of LNCPE under the title 'Modern Perspectives in Physical Education and Sport Sciences'. This book also deals mainly with one sided view of discipline. The direction of both the publications seems to be the same even though the titles give an impression that much larger areas of physical education and sport are covered.

Physical Education and Sport, in the contemporary times, have travelled much ahead. The focus has shifted. Changes in social settings bring in changes in beliefs, concepts, philosophies, life styles etc. The new emerging technologies have revolutionised the entire complexion of life. As a corollary, it has changed the concept of Physical Education and Sport. In the first half of 19th Century, Guts Muths' Gymnastics symbolised physical education. This concept spread rapidly all over Europe and later in North America. In the wake of Industrial Revolution, sport was conceived, as Norbert Elias put it, "an occupation of gentleman amateur". Modern Physical Education and Sport is neither merely Gymnastics nor is it only a leisurely pursuit of the 19th century industrial workers and middle classes. Its study is not either limited to anthropology, biology, physiology, bio-mechanics, Kinesiology, sports medicine, Khanthropology, Psychology etc. It is much more than that. It has grown into a multidimensional area of investigation and has extended its scope much wider. Today, it is a programme which, besides the above disciplines, embraces the study of subjects like construction and maintenance of infrastructure of sports facilities; manufacture, maintenance; and marketing of sports equipment; sports administration, its organisation and managements; media coverage; social, economic and political aspects of sport etc.

The journal will better justify its title if its articles cover the entire gamut of Physical Education & Sport. If it does not, it would be rather advisable to change the title. This is a suggestion which the Board of Editors may perhaps like to consider.

Joint Secretary (Sports), Association of Indian Universities, New Delhi-110002.

Education and Development

(Contd. from page 6)

nonviable fragments each year. There is a great amount of frustration in rural areas because of nonprofitable agriculture. This state of affairs in agriculture is the root cause of the present political instability in our country.

Unsatisfactory progress in the national economy, unusually slow pace of industrial growth continuously for the past 30 to 35 years barring the last two to four years, lack of healthy growth of nonagricultural pursuits in rural areas, increasing population, growing poverty in rural areas and unemployment are the causes of increasing violence in the country. It would be unreasonable to expect satisfactory solutions to our problems unless we change this situation.

The Konkan region has a glorious tradition of making valuable contributions to the fields like science, art, culture, politics and social work. Should we expect the young generation of Konkan to follow this tradition in solving the problems faced by our nation? A few years ago, I had written a paper on "Problems of development of irrigation in Konkan". The paper is now incorporated in my book "Agriculture and water". I have described in that book the Konkan of my dream, which I would like to reproduce here:

"I look upon the day as the most fortunate one for Maharashtra when thousands of our brothers and sisters from Konkan once migrated to Bombay return back for permanent settlement to Konkan which is adorned with manmade forestry that pleases the sight, embellished with blooming orchards, blossming with lush green fields even during summer, beautified by pretty lakes and unpolluted flowing streams offering picturesque scene, utilising every drop of water for agro-industries and humming with industries and fisheries activities! An optimistic Maharashtrian like me is looking forward to such a day. However, it is only the inhabitants of Konkan, who can make this dream come true" ☐

Contrary to Traditions

Sir,

I am inclined to write brief comments on two of the contributions in *University News*, dated 21st May, 1990. One is "Higher Education in India, Structural and other Problems" by Amrik Singh and the other is "Community & Junior Colleges in the United States" by Mrs. Purnima Mathur & S.S. Mathur.

I generally agree with Amrik Singh, my old friend, particularly with the section, "Centre-State relations" and the other parts of the article. I have my doubts regarding corruption to such extent, for example, "There are all kinds of stories about how these deals are negotiated. In certain cases under the table transactions are alleged. In certain other cases the visiting principals are asked to meet officials at home and so on." This appears to be inconsistent with the traditions long ago established by chairmen like Dr. C.D. Deshmukh & Dr. D.S. Kothari and their successors and secretaries like Samuel Mathai and myself, and their successors.

In the second article by Mathurs, I only want the attention of the readers to the application of the institution to India. I had visited U.S.A. two times to study the present problem and I have written "Problems of Higher Education in India—an approach to structural analysis and Re-organisation." (Popular Prakashan, Bombay, 1977). Chapter VIII is "The need for community/Junior Colleges in India," in which I have dealt with the application to Indian conditions. What is the application of the institution to India is the real problem.

Sincerely,
K.L. Joshi,
44/3, Surekh Cooperative Society,
'Kaivalya' Bunglow,
Yarandawan, Pune-411 004.

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited upto **30.7.1990** for the post of **Project Director** at the Bhopal Gas Disaster Research Centre, Bhopal. The post is temporary, but likely to continue.

This Centre conducts long term epidemiological studies in the population exposed to toxic gas in Bhopal Gas Tragedy 1984 and also coordinates various other ICMR studies on the subject.

Qualifications & Experience : Essential : M.B.B.S. with M.D. in Medicine/Social & Preventive Medicine/Pathology with 15 years research/teaching experience with original work as evidenced by publications.

Desirable : Administrative experience in responsible positions.

Job Requirements : It is a top research management post. The Project Director will have the overall responsibilities of the Centre for management, coordination and guidance of the studies at Bhopal, and to interact with local health authorities to help in the solution of their health problems in the region. He should be able to write lucidly scientific and health status reports.

Salary/Conditions of Service : The scale of pay attached to the post is Rs. 5,900-200-6,700, plus allowances as per Central Govt. rules and N.P.A. for medical graduates only. Higher initial pay can also be considered. Free medical aid and leave travel concession are also permissible for the employee and his family as per Govt. rules.

Age : Below 50 years. SC/ST candidates allowed relaxation in accordance with Govt. of India rules. **The age limit for the post is relaxable in special cases.**

Time Limit : The candidate must be able to join the post latest by **Ist October, 1990.**

Educational qualifications relaxable in the case of candidates otherwise well qualified. Private practice is not allowed. However, non-practising allowance is admissible to medical graduates only as per rules of the Council. Application forms can be obtained from the Office of the **Director General, Indian Council of Medical Research (NCD-I), Ansari Nagar, Post Box 4508, New Delhi-110 029** to whom the complete application form should be sent accompanied with crossed postal order for Rs. 8/- (No fee for SC/ST candidates) made out in the name of the Director General ICMR, New Delhi. Applications without postal orders will not be entertained.

Candidates called for interview will be paid Ist class rail fare by the shortest route. No TA/DA is admissible for joining the post or on termination of appointment. Application from the employees working under the Cental/State Govt./Semi Govt. and Govt. controlled undertakings should be sent through the employers and be received before the closing date alongwith the certificate that the applicant will be relieved within one month of receipt of appointment orders. Advance copies will be considered subject to the proviso that the certificate will be produced at the time of personal discussion. Applications received after the closing date will not be considered. At the time of personal discussion they should produce "No Objection Certificate" from their employer.

The name of the post and of the Centre must be indicated in the application. Incomplete application will not be entertained.

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A list of research scholars registered for doctoral degrees in Indian Universities.

SOCIAL SCIENCES

Journalism

1. Hari, M.R. *The process and effects of television: A study of Kerala.* Kerala. Dr. M. Thangadorai, Reader, Department of Communication and Journalism, University of Kerala, Kariavattom.
2. Jotheendra Kumar, V.K. *Patterns of mass media use by urban/rural people comparative study of Kerala and Tamil Nadu.* Kerala. Dr. M. Thangadorai, Reader, Department of Communication and Journalism, University of Kerala, Kariavattom.

Sociology

1. Kang, Neelu. *Women activists: A sociological inquiry into their backgrounds, value orientations and activities pertaining to women's question.* Panjab. Prof. S.L. Sharma, Department of Sociology, Panjab University, Chandigarh.
2. Mahajan, Nirupma. *TV as an agent of social change: A sociological study in Chandigarh.* Panjab. Prof. K.L. Sharma, Department of Sociology, Panjab University, Chandigarh.
3. Sharma, Vandana. *Professional socialisation of student physicians in selected medical colleges of Delhi.* Panjab. Dr. S.R. Mehta, Department of Sociology, Panjab University, Chandigarh.
4. Sharma, Veena. *The status of women in modern India: Approaches of Gandhi and Nehru.* Panjab. Dr. (Mrs.) Rashmi Sudha, Puri, Department of Gandhian Studies, Panjab University, Chandigarh.

Political Science

1. Bhardwaj, Ramesh Chander. *Private Members' bills in Indian Parliament, 1982-89.* Panjab. Dr. (Miss) Pam Rajput, Department of Political Science, Panjab University, Chandigarh.
2. Tejinder Kaur. *India and South Asian Cooperation: The study of problems and prospects.* Panjab. Dr. Ritu Sharma, Department of Political Science, Panjab University, Chandigarh.

Economics

1. Jacob, Monica. *Agricultural losses in Indore Division.* Devi Ahilya. Dr. Vinod David, Prof. and Head, Department of Economics, Govt. Arts and Commerce College, Indore.
2. Raj Kumari. *An economic analysis of fertility behaviour in Himachal Pradesh.* HP. Dr. Vandana Rao Dev, Department of Economics, Himachal Pradesh University, Shimla.
3. Sharma, Pradeep Kumar. *Development, inquality and poverty: A study of the emerging scenario of Himachal Pradesh, 1966-67 to 1985-86.* Panjab. Dr. A.C. Julka, Department of Economics, Panjab University, Chandigarh.
4. Sharma, Tulsi Raman. *Rural development programmes: An evaluation of IRDP, NREP and RLEGP in Mandi District.* HP. Dr. N.K. Sharma, Department of Economics, Directorate of Correspondence Courses, Himachal Pradesh University, Shimla.
5. Surinder Kumar. *Economics of production and marketing of ginger. vis-a-vis other competing crops in Sirmaur District.* HP. Dr. B.K. Sikka, Department of Agro-Economic Research Centre, Himachal Pradesh University, Shimla.

Public Administration

1. Chopra, Parvesh Kumar. *Rural poverty alleviation programmes in Haryana: A critical study.* Panjab. Dr. (Mrs.) Shyama Bhardwaj, Department of Public Administration, Panjab University, Chandigarh.
2. Dharmendra Singh. *A study of the administration of the Haryana Agricultural University, Hisar.* Panjab. Dr. S.L. Goel, Department of Public Administration, Panjab University, Chandigarh.

Education

1. Garg, Seema. *The concept of life in modern Biology and Indian Philosophy and its implications in the curriculum of secondary schools.* Devi Ahilya. Dr. U.C. Vashishtha, Lecturer, Department

of Education, University Teaching Department, Devi Ahilya Vishwavidyalaya, Indore.

2. Krishnankutty, T. *Development oriented curriculum models relevant for tribal students.* Kerala. Dr. N. Vedamani Manuel, Director, CERID, Mitraniketan.

Commerce

1. Ghatage, Shivajirao Khanderao. *Management practices adopted by co-operative sugar factories in Kolhapur and Sangli Districts.* Shivaji. Dr. M.M. Ali, Chh. Shahu Central Indstitute of Business Education and Research, Kolhapur.

2. Kadukar, Shivaram Baburao. *A study of fringe benefits to the workers in co-operative sugar factories in Kolhapur District.* Shivaji. Dr. C.S. Shreshthi, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

3. Kumthekar, Dilip Mohanrao. *An evaluation of working capital management in small scale industries in Sangli District.* Shivaji. Dr. M.M. Ali, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

4. Mathews, Mumsy. *An evaluation of the D.R.I. Scheme of commercial banks in Kerala.* Kerala. Dr. S. Kevin, Lecturer, Department of Commerce, Institute of Correspondence Courses, University of Kerala, Kariavattom.

5. Nataraja Iyer, S. *An evaluation of the financial performance of public sector enterprises of Kerala.* Kerala. Dr. S. Kevin, Lecturer, Department of Commerce, Institute of Correspondence Courses, Kariavattom.

6. Nyaoga, Oroko Peter Anderson. *Influence of formalization on organizational commitment and work alienation: A study of managers in Kenya's public sector industry.* Shivaji. Dr. Babu Thomas, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

7. Parchehbaf, H.A. *A study of the impact of opec's performance of third world countries with special reference to Iran's involvement during the period 1979-1984.* Shivaji. Dr. P.S. Rao, Chh. Shahu Central Business Education and Research, Kolhapur.

8. Patwardhan, Ashok Mukund. *Evaluation of family welfare television commercials as a measure of awareness and attitudes among demographic groupings with reference to Kolhapur City.* Shivaji. Dr. P.S. Rao, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

9. Power, Minita Krishnapratap. *Mapping and management of Wastelands of Kolhapur District, Maharashtra.* Shivaji. Prof. (Dr.) P.S. Rao, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

10. Raich, Ramchandra Nilkanth. *A comparative study of personnel policies and practices in commercial and co-operative banks.* Shivaji. Dr. M.M. Ali, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

11. Sangale, Gorakh Tukaram. *Marketing of services of Life Insurance Corporation of India, with special reference to Satara Division.* Shivaji. Dr. M.M. Ali, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

12. Thomas Philip. *A study of the working of employees' cooperative credit societies in Kerala.* Kerala. Dr. S. Kevin, Lecturer, Department of Commerce, Institute of Correspondence Courses, Kariavattom.

13. Thorat, Hansraj Deoram. *Managerial problems in engineering industry in Southern Maharashtra.* Shivaji. Dr. M.M. Ali, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

14. Vibhute, Shashidhar Ganapatrao. *A study of recording and reporting practices in selected industries in Kolhapur District.* Shivaji. Dr. M.M. Ali, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

15. Wadkar, Vilas Pandharinath. *Management of bus transport system for Kolhapur City.* Shivaji. Dr. D.H. Hindocha, Chh. Shahu Central Institute of Business Education and Research, Kolhapur.

Home Science

1. Patni, Manju. *A study of decision making ability amongst working and non-working house wives.* Devi Ahilya. Dr. Shail Bansal, Asstt. Prof., Govt. Nutan Post-graduate Girls' College, Indore.

2. Shrivastava, Rashmi. *Viklang balakon kee vikas prakriya per kuchh manovaigyanik evam samajik tatvon ka prabhav.* Devi Ahilya. Dr. Reeta Sonawat, Reader, National Ambedkar Research Institute, Mhow.

Management

1. Edakulathur, Johnson Michael. *Impact of corporate events and decisions on equity share price movements.* Kerala. Dr. R. Gangadharan Nair, Reader, Department of Commerce, Institute of Correspondence Courses, Trivandrum.

HUMANITIES

Fine Arts

Music

1. Menon, N. Lekha. *Nav vidha bhakthi: A study based on the compositions of Karnatik music composers.* Kerala. Dr. S. Bhagyalakshmi, Sub-Editor, State Institute of Children's Literature, Govt. Sanskrit College Campus, Trivandrum.

2. Renuka, K.V. *Madhura bhakthi and its influence on the thoughts and compositions of Andal Jayadeva and Swathithirunal.* Kerala. Dr. (Mrs.) Leela Omchery, B-3/87, Phase II, Ashok Vihar, Delhi.

3. Sreelekha, R. *Ravivarman Thampi and his contributions to Karnatik Music.* Kerala. Dr. (Mrs.) Leela Omchery, B-3/87, Phase II, Ashok Vihar, Delhi.

Language & Literature

English

1. Karande, Ashok Aba. *Towards a description of educated Indian English speech.* Shivaji. Dr. S.V. Shastri, Prof. and Head, Department of English, Shivaji University, Kolhapur.

2. Navjot Kaur. *Brechtian Dramaturgy and the modern British drama.* Panjab. Dr. Ishwar Dutt, Department of English, Panjab University, Chandigarh.

3. Radha Devi, R. *Folklore in the fictional works of Thomas Hardy.* Kerala. Dr. S. Sreenivasan, Prof and Head, Department of English, S.N. College, Kollam.

4. Sajeev, A. *The desperate morality of Bernard Malamud.* Kerala. Dr. Jancy George, Lecturer, Institute of English, University of Kerala, Thiruvananthapuram.

5. Vijayakumar, J. *The image of the under dog in the early novels of Anand and Thakazhi.* Kerala. Dr. N. Viswanathan, Prof., Institute of English, University of Kerala, Thiruvananthapuram.

Sanskrit

1. Anand Dilip Raj. *Suchindrasthala Mahatmya: A critical edition and study.* Kerala. Dr. T. Devarajan, Reader, Department of Sanskrit, University of Kerala, Kariavattom.

2. Beena, T.D. *The Sanskrit works of Koccunni Tampuran: A study with a critical edition of Anangajivana and Vitarajavijayabhana.* Kerala. Dr. T. Devarajan, Reader, Department of Sanskrit, University of Kerala, Kariavattom.

3. Giri, V.V. *Ranadipika of Kumaraganaka: A study.* Kerala. Dr. N. Parameswaran Unni, Prof., Department of Sanskrit, University of Kerala, Kariavattom.

4. Jessy, K. *A critical study of the Dramas of Balakavi.* Kerala

Dr. T. Devarajan, Reader, Department of Sanskrit, University of Kerala, Kariavattom.

5. Joshi, Usha. *Smritiyon mein Achar: Mimansa (Manu Yagyavalya aur Parashar Smriti ke sandarbh mein.* HP. Dr. (Mrs.) Vidya Sharda, Department of Sanskrit, Himachal Pradesh University, Shimla.

6. Kevaliya, Shyamsunder. *Sanskrit evam Prakrit vangmaya ko Dharanagari ka yogdan Bhoj evam Parmar kal.* Vikram. Prof. Shrinivas Rath, Head, Department of Sanskrit, Vikram University, Ujjain.

7. Mishra, Rajendra Prasad. *Charak evam Sushrut samhitaon ka darshnik dharatal.* Vikram. Prof. Shrinivas Rath, Head, Department of Sanskrit, Vikram University, Ujjain.

8. Rajeev, K.B. *Dragganita: A study.* Kerala. Dr. K. Maheshwaran Nair, Lecturer, Department of Sanskrit, University of Kerala, Kariavattom.

9. Rajni Kant. *Vaishnavpuranon mein Purusharth—Chatushtay ke sandarbh mein vardanon ka vivechanatmak adhyayan.* Panjab. Prof. B.B. Choubey, Vishveshvaranand Vishwa Bandhu Institute of Sanskrit and Indological Studies, Hoshiarpur.

10. Rath, Shitanshu. *Ram-katha kee trayi Balmiki, Bhas tatha Kalidas.* Vikram. Dr. Babulal Shukl Shastri, Kalidas Academi, Vishwavidyalaya Marg, Ujjain.

11. Sanjay Kumar. *Mahakavi Bharvi ka kavyashastriya adhyayan.* HP. Dr. Prem Lal Thakur, Department of Sanskrit, Himachal Pradesh University, Shimla.

12. Sharma, Balkrishna. *Kavya-prakash ka darshnik dharatal.* Vikram. Prof. Shrinivas Rath, Head, Department of Sanskrit, Vikram University, Ujjain.

13. Sharma, Dineshkumar. *Vitthal Budhkar ka Advait sahitya: Ek sameekshatmak adhyayan.* Vikram. Dr. Somnath Naine, Prof., Department of Sanskrit, Vikram University, Ujjain.

14. Sharma, Jayantidevi. *Khand-prashasti kee do aprakashit tikaon ka sampadan tatha anusheelan.* Vikram. Dr. Rudradev Tripathi, C-3124, Rishinagar, Ujjain.

15. Sharma, Kailashnarain. *Somnath Vyas virachit Kalindika Prakash: Pandu granth Kalandika Prakash ka sampadan evam anusheelan.* Vikram. Prof. Shrinivas Rath, Department of Sanskrit, Vikram University, Ujjain.

16. Sharma, Lekh Raj. *A critical study of Vashistha Samhita with special reference to Yog Shastra.* Panjab. Dr. Dhan Raj Sharma, Department of Sanskrit, Panjab University, Chandigarh.

17. Sharma, Mohan Lal. *Bhartiya Vyaktitva Mimansa mein vyakarnon ke sfot sidhant ka vishleshanatmak adhyayan.* Punjab. Dr. Vikram Kumar and Dr. Rama Kant Sharma, Department of Sanskrit, Panjab University, Chandigarh.

18. Somarajan, P.K. *Vyavaharamala: A critical study.* Kerala. Dr. T. Devarajan, Reader, Department of Sanskrit, University of Kerala, Kariavattom.

19. Sudhakumari, K.S. *Chandralekha Sattaka: A critical edition and study.* Kerala. Dr. T. Devarajan, Reader, Department of Sanskrit, University of Kerala, Kariavattom.

20. Tripathi, Jyotishmati. *Meghdoot kee parampara mein nirmit Shri Krishna Charitotmak Sanskrit dootkavyon ka sameekshatmak anusheelan.* Vikram. Dr. Bachchulal Awasthi, Kalidas Academi, Vishwavidyalaya Road, Ujjain.

21. Trivedi, Anita. *Kalidas Sahitya: Shastriya sandarbhon mein samalochanatmak adhyayan.* Vikram. Prof. Shrinivas Rath, Head, Department of Sanskrit, Vikram University, Ujjain.

22. Vijayakumar, R. *Courtesans in Kerala Sanskrit dramas.* Kerala. Dr. T. Devarajan, Reader, Department of Sanskrit, University of Kerala, Kariavattom.

23. Vyas, Vimal. *Shringar-purak pratinidhi muktakon ka alochanatmak adhyayan.* Vikram. Dr. Kedarnath Shukla, Prof., Department of Sanskrit, Vikram University, Ujjain.

Punjabi

1. Ahuja, Jasbir Kaur. *Guru Arjan Dev Ji's interpretation of vedanta.* Panjab. Prof. Darshan Singh, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh and Dr. Balbir Singh Nanda, Reader, Department of Panjabi, Development and Planning, Punjabi University, Patiala.

2. Balwant Rai. *The life and doctrine of Guru Ravidass.* Panjab. Prof. Darshan Singh, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh and Dr. Gobind Singh Mansukhani, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh.

3. Bhupinder Kaur. *A critical study of Punjabi literature produced under the impact of Akali movement with special reference to Punjabi poetry.* Panjab. Dr. Darshan Singh, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh.

4. Bhupinder Kaur. *Modern sensibility in poetry of Sohan Singh Mishra.* Panjab. Dr. Nahar Singh, School of Punjabi Studies, Panjab University, Chandigarh.

5. Darshan Kaur. *Guru Arjan Dev Jee bani vich pratap sanskritik mulya.* Panjab. Prof. Darshan Singh, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh.

6. Gill, Gurbhajan Singh. *Cultural image of Guru Nanak's poetry.* Panjab. Prof. Darshan Singh, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh.

7. Gursharan Singh. *Punjabi novel vich police dee bhumika: Ek alochnatmak adhyayan.* Panjab. Prof. Attar Singh, Baba Farid Chair, Panjab University, Chandigarh.

8. Jasbir Kaur. *Adi granth ate adhunik Punjabi dee sama n shabdavali da arth vigyantk adhyayan.* Panjab. Dr. Darshan Singh, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh.

9. Jaswinder Singh. *Punjabi itihasik novel ik adhyayan purav sutantarta kal de sandarbh vich.* Panjab. Prof. Darshan Singh, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh and Dr. S.P. Singh, Department of Punjabi, Guru Nanak Dev University, Amritsar.

10. Kler, Harinderjit Singh. *Punjabi lok geet ate samajik yatharath.* Panjab. Dr. O.P. Vasishta, Department of Punjabi Lexiography, Panjab University, Chandigarh.

11. Mann, Gurmeet Singh. *Print media and the Sikh politics, 1900-1947: A case study of the Tribune.* Panjab. Dr. Darshan Singh, Department of Guru Nanak Sikh Studies, Panjab University, Chandigarh and Dr. S.P. Singh, Department of Punjabi, Guru Nanak Dev University, Amritsar.

12. Rajinder Kaur. *Gurmati Kirtan vich varte gai sazan da sabhiacharak ate itihasik pichhokar.* Panjab. Prof. Darshan Singh, Guru Nanak Sikh Studies, Panjab University, Chandigarh and Dr. Jatinder Paul Singh, Lecturer, Govt. College, Mohali.

13. Satish Kumar. *The short stories of Ajit Kaur and Mridula Garg: A comparative study.* Panjab. Dr. Naresh, Department of Bhai Vir Singh Chair, Panjab University, Chandigarh.

14. Sharma, Raj Kumar. *Guru Ravidass Vani ka sanskritik adhyayan.* Panjab. Dr. D.P. Singhal, Department of Guru Ravi Dass Chair, Panjab University, Chandigarh.

Hindi

1. Kulkarni, Nirmala, Vishwanath. *Adhunik Hindi ke pratinidhi upanyason mein viklangon ka chitran: Premchand se lekar isvi 1980 tak.* Shivaji. Dr. G.R. Kulkarni, 331, Gaon Bhag, Patil Galli, Sangli.

2. Mahajan, Anita. *Shankar Shesh ke natakon ka natya shilp kee drishti se adhyayan.* Panjab. Dr. V.R. Mehndiratta, Department of Hindi, Panjab University, Chandigarh.

3. Mayadevi, P.S. *A study of the problem plays of Lakshmi Narayan Misra.* Kerala. Dr. K. Valsaladevi Devi, Lecturer, College for Women, Trivandrum.

4. Nadaf, A. Aziz Babulal. *Ghazal rachana tantra Hindi-Urdu-Marathi ghazalon ke sandarbha mein.* Shivaji. Dr. D.K. Gaikwad, Shri Shivaji Mahavidyalaya, Barsi, District: Solapur.

5. Nadar, A Neelalohithadasan. *The social perspective and cultural values in the plays of Safdar Hashmi.* Kerala. Dr. R.S Ramachandran Nair, House No. 104, P.T.P. Nagar, Trivandrum.

6. Ram Karan. *Rashtriya kavya-dhara ke alok mein Sohan Lal Dwivedi ke kavya ka mulyankan*. Panjab. Dr. Jaya Prakash, Department of Hindi, Panjab University, Chandigarh.

7. Sawant, Padma S. *Sattotar Hindi aur Marathi lekhikayon kee kahaniyon ke madhyavargiya naripatron ka manovaigyanik drishti se tulnatmak adhyayan*. Shivaji. Dr. S.C. Gokakakar, Rani Laxmi Bai Road, Gadhinglai, Dist. Kolhapur.

8. Sharma, Shiv Kumar. *Manas mein mukti ka swarup: Samkaleen sandarbh mein ek adhyayan*. Panjab. Dr. Paresh, Department of Hindi, Panjab University, Chandigarh.

Urdu

1. Khan, Killedar Rafia Ahmed Habibulla. *Akbar Allahabadi and his poetry: Critical estimate*. Shivaji. Dr. M.N. Wadwan, Solapur Social Association, Arts and Commerce College, Solapur.

2. Mansoori, Fehmedda. *Urdu masnavi mein kirdar nigari*. Devi Ahilya. Prof. Abdul Aziz Indori, Prof. and Head, Department of Urdu, Islamia Karimia Degree College, Indore.

Marathi

1. Chaudhari, Uttam Bhagawan. *Dalit atmakathancha: Chikitsak abhyas*. Shivaji. Dr. P.D. Gumaste, 26, Sant Sopandeo Society, Sant Nagar, Pune.

2. Gaikwad, Mahadeo Ganpat. *Marathi swatantraya kavi Savarkar va Hindi rashtriya kavi Dinkar yanchya rashtriya kavyacha tulnatmak abhyas*. Shivaji. Dr. S.R. Chavan, Kisan Veer Mahavidyalaya, Satara.

3. Kengar, Raghunath Anna. *Shahir haivati: Vyakti vangmaya anivichar*. Shivaji. Dr. S.R. Chavan, Sushipa, Bavadhan Rasta, Wai, District Satara.

4. Patil, Tanaji Rau. *Anand Yadav yanchya vangmayeen sarvageen abhyas*. Shivaji. Dr. P.V. Kulkarni, Devchand College, Arjunnagar, Dist: Kolhapur.

5. Shelake, Anil Namdev. *Satyakatha masikancha vangmayeen karya*. Shivaji. Dr. (Smt.) S.R. Patil, S.G.M. College, Satara.

6. Thorat, Mahadev P. *Anant Kanekar: Vyaktitva ani vangmaya*. Shivaji. Dr. G.M. Pawar, Prof. and Head, Department of Marathi, Shivaji University, Kolhapur.

Tamil

1. Dawson. J.G.N. *Prosody in Kannathason's poetical works*. Kerala. Dr. P. Padmanabhan Thampi, Lecturer, Oriental Research Institute and MSS Library, University of Kerala, Kariavattom.

Malayalam

1. Geethadevi, R. *Nostalgia in Malayalam romantic poets with special reference to Viloppilly and P. Kunjiraman Nair*. Kerala. Dr. P.V. Velayudhan Pillai, Department of Malayalam, University of Kerala, Kariavattom.

Geography

1. Anita Kumari. *Traditional domestic fuels in rural Himachal Pradesh: A regional-environmental appraisal*. Panjab. Prof. A.B. Mukerji, Department of Geography, Panjab University, Chandigarh.

2. Dyal, Lakshminder. *Slums in an industrial city: A case study of Ludhiana*. Panjab. Prof. Gopal Krishan, Department of Geography, Panjab University, Chandigarh.

History

1. Anil Kumar. *Mihir Bhoja and his times, C. 836-882 A.D.* Panjab. Dr. J.K. Sharma, Department of History, Panjab University, Chandigarh.

2. Dharmjit Singh. *The Viceroyality of Lord Linlithgow, 1936-1943 A.D.* Panjab. Prof. R.C. Jauhri, Department of History, Panjab University, Chandigarh.

3. Garg, Peeyush Kumar. *Position of women in Northern India from 700 A.D. to 1200 A.D.* Roorkee. Dr. (Mrs.) Poonam Sagar, Department of Humanities and Social Sciences, University of Roorkee, Roorkee and Prof. (Dr.) K.K. Sharma, Institute of Advanced Studies, Meerut University, Meerut.

4. Redig, I. Wayan. *A comparative study of Ganesa images from India and Indonesia from Circa 7th to 15th century A.D.* Panjab. Dr. D.K. Handa, Department of Ancient Indian History, Culture and Archaeology, Panjab University, Chandigarh.

5. Sharma, Pratima. *Sports and pastimes in Ancient India from pre-historic times to circa 650 A.D.* Panjab. Dr. D.K. Handa, Department of Ancient Indian History Culture and Archaeology, Panjab University, Chandigarh.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities.

SOCIAL SCIENCES

Library & Information Science

1. Panda, Krushna Chandra. *Multitype library resource sharing and networks with special reference to university libraries of Orissa*. Berhampur. Dr. C.R. Karisiddappa, Reader, Department of Library and Information Science, Karnatak University, Dharwad.

Psychology

1. Thomas, Rebecca. *Postpartum psychosis: An empirical study on certain personality variables*. Kerala. Dr. H. Sam Sananda Raj, Reader, Department of Psychology, University of Kerala, Kariavattom.

Sociology

1. Jayatilaka, Santhi Ramanie de Silva. *Changing agrarian relations: A comparative study of an irrigated and a non-irrigated village in Sri Lanka*. JNU. Prof. T.K. Oommen, Centre for the Study of Social Systems, Jawaharlal Nehru University, New Delhi.

2. Leela Kumari P. *Social mobility among scheduled caste women in Kerala*. Kerala. Dr. (Mrs.) M. Indukumari, Lecturer, Department of Sociology, University of Kerala, Kariavattom.

3. Rao, Sumathy S. *Determinants of differential acceptance of family planning in Madras City*. Venkateswara. Prof. K. Mahadevan, Department of Population Studies, Sri Venkateswara University College, Tirupati.

4. Shabeen Ara. *Old age among slum dwellers*. Karnatak. Dr. B.H. Amati, Reader, Department of Sociology, Karnatak University, Dharwad.

Social Anthropology

1. Gangte, Thangkhomang S. *Socio-cultural life of the Kukis of Manipur: A historical analysis.* Calcutta.

Political Science

1. Hazarika, Minu. *Training of public personnel in Assam.* Gauhati. Dr. V.V. Rao, Prof. (Emeritus), Gauhati University, Guwahati.

2. Jitendra Nath. *Britain and the problem of Northern Ireland, 1968-1982.* JNU. Dr. B. Vivekanandan, Centre for American and West European Studies, Jawaharlal Nehru University, New Delhi.

3. Karthak, Edith Laldingliani. *Sino-US relations, 1979-1984.* JNU. Prof. Gargi Dutt, Centre for East Asian Studies, Jawaharlal Nehru University, New Delhi.

4. Nagamaheswara Reddy, M. *District politics in A.P.: A case study of Cuddapah.* Osmania.

5. Pandey, Indu. *Vishwa shanti kee sathapana ke sandarbh mein gut nirpeksh andolan mein Bharat ka yogdan.* Vikram. Dr. Ramrattan Sharma, Department of Economics, Vikram University, Ujjain.

6. Panwar, Meenakshi. *Madhya Pradesh mein panchayati raj ka kriyanvyan: Pashchmi Nimad Jile ke sandarbh mein ek adhyayan.* Vikram Dr. D.K. Billore, Department of Political Science, Govt. College, Dhar.

7. Sahariah, Ganeswar. *Sociology of tea garden labourers in Darrang District.* Gauhati. Dr. V.V. Rao, Prof. (Emeritus), Gauhati University, Guwahati.

8. Veermani, Narendra. *Contribution of Urdu to the process of politicisation in the Indian freedom struggle with special reference to Madhya Pradesh: A critical and analytical study.* Devi Ahilya. Dr. B.R. Sadh, Hardiya Compound, Indore.

9. Vijayanatharaj, P.S. *Voting behaviour in Kanyakumari District: A study of 1984 election.* Kerala. Dr. G. Gopakumar, Lecturer, Department of Politics, University of Kerala, Kariavattom.

Economics

1. Bhaumik, Sankar Kumar. *Systems of land tenure, allocative efficiency and agrarian development: A study of agriculture in West Bengal.* JNU. Prof. G.K. Chadha, Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi.

2. Bordoloi, Budhindra Nath. *A study of the problem of transfer and alienation of tribal land in Assam with special reference to Karbis of Karbi Anglong District.* Dibrugarh University, Dibrugarh.

3. Chopra, Shashi. *Inflation, house hold savings and economic growth.* Baroda.

4. Dhian Singh, *Economics of livestock in J&K State: A case study of Jammu District:* Jammu. Dr. O.P. Sharma, Reader, Department of Economics, University of Jammu, Jammu.

5. Gopal Reddy, B. *Population growth and economic development: A study of Chittor District in Andhra Pradesh. Venkateswara. Dr. K. Narasimhulu, Reader, Department of Economics, Sri Venkateswara University College, Tirupati.*

6. Goswami, Ajit Pavan. Educational development and economic growth in Assam, 1961-70 to 1974-75: An empirical investigation. Dibrugarh. Prof. A. Goswami, Department of Economics, Dibrugarh University, Dibrugarh.

7. Panda, Jayaram. Labour utilization and productivity: A study of work, work situation and wages of the migrant labourers in Jammu City and its surrounding area. Jammu. Dr. O.P. Kotwal, Prof., Department of Economics, University of Jammu, Jammu.

8. Raghavesh, K.N. Badami. *Employment, Income and poverty: A case study in Ghataprabha Command Area.* Bangalore. Dr. B.K. Narayan, Institute for Command Study, Irrigation Management, 1382, "Sri Venkateshwar Krupa" 32nd Corss, 4th 'T' Block, Jayanagar, Bangalore.

9. Satya Sekhar, Padala. *Farm supply response: A case study of rice in Andhra Pradesh.* Andhra.

10. Vyas, Indubala. *Ujjain Sambhag ke sathaniya (nagarpalikaon) ka vittiya prabandh: Shajapur Nagarpalika ke vishesh sandarbh mein.* Vikram. Dr. Ramrattan Sharma, Department of Economics, Vikram University, Ujjain.

Law

1. Coutinho, Venit Barnard. *Strikes in industrial conflict: A critical study.* Karnatak. Prof. G.V. Ajjappa, Prof. (Retd.), Post Graduate Department of Studies in Law, Karnatak University, Dharwad.

2. Goyal, Jugal Kishore. *A critical study of Direct Tax Law in India with reference to their application to a Hindu joint family and its members.* Devi Ahilya. Dr. G.C. Kasliwal, 24, Sarvodaya Nagar, Indore.

3. Shyam Singh. *Sex offences in India: A critical appraisal in the light of socio-cultural change.* Jammu. Dr. S.G. Singh.

Education

1. Batani Devi. *Effect of behaviour modification techniques on aggressive pre-school children of anganwadi centres in Chandigarh.* Panjab.

2. Das, Manoranjan. *A study on the socio-economic problems in the implementation of the adult education programme in Assam.* Gauhati. Dr. (Mrs.) Renu Debi, Prof., Department of Education, Gauhati University, Guwahati.

3. Doshi, P.C. *Achievement and cognitive preference style in Mathematics of Xth class students.* Rajasthan. Prof. L.K. Oad, Former Principal, Banasthali Vidyapeeth, Banasthali.

4. Jacob, P.J. *Identification of certain curricular areas in functional science and construction of select models for adult education.* Kerala. Dr. (Mrs.) Mercy Abraham, Prof., Department of Education, University of Kerala, Trivandrum.

5. Malik, Mohammad Sharif. *Intelligence, need achievement, test anxiety, adjustment and locus of control as correlates of academic achievement among Gujjar and Bakkerwal high school students.* Jammu. Dr. N.R. Sharma, Lecturer, Department of Education, University of Jammu, Jammu.

6. Mani, K.J. *Vocationalisation of education at +2 stage: A study of some major problems of vocationalisation of education in A.P.* Osmania.

7. Mani, R.S. *Evolving a programme of teacher education at plus 2 stage.* Baroda.

8. Muni Reddy, R. *Growth and development of wrestling in Karnataka.* Bangalore. Dr. S.C.B. Veeraswamy (Retd.), University College of Physical Education, Jnana Bharathi Campus, Bangalore University, Bangalore.

9. Pandya, Shakuntala. *Madhyamik vidhyalayee chhatron mein naitik mulyon ke vikas hetu prayukat vibhinn savuhaono ke prabhavotpadakta ka tulnatmak adhyayan.* Rajasthan.

10. Venkata Lakshmi Reddy, M. *Background, selection and training of population education field functionaries at degree college level.* Venkateswara. Prof. V.L.N. Reddy, Department of Adult Education, Sri Venkateswara University College, Tirupati.

Commerce

1. Badal, Sangeeta. *Sagar sambhag mein mahila krishi shramikon ka arthik adhyayan.* HS Gour. Dr. O.P. Agarwal, Department of Commerce, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Bhambra, Amarjit Singh. *Management of working capital in state undertakings of Assam: An enquiry into its problems.* Gauhati. Dr. A.K. Sharma, Prof. (Retd.), Department of Business Administration, Gauhati University, Guwahati.

3. Jain, Mahendra Kumar. *Madhya Pradesh ke uttar purvi kshetron mein sinchai suvidhaon kee pragati evam krishi vikas ka mulyankan: Sagar evam Rewa Sambhag ka tulnatmak adhyayan.* HS Gour. Dr. O.P. Mishra, Prof. and Head, Department of Commerce, Govt. Post Graduate College, Bina, Sagar.

4. Mehta, Gyan Chand. *Madhya Pradesh mein kshetriya Grameen Bank: Pragati evam bhavishya: ek mulyankan.* Vikram. Dr. Satish Jain, Department of Commerce, Govt. Postgraduate College, Jhabua.

5. Rajyalakshmi, Nittala. *A study of productivity of major Indian ports: A study of labour, capital and total productivities of Visakhapatnam Port in particular and all ten major Indian Ports in particular.* Andhra.

6. Ramana Reddy, V.V. *Role of institutional finance in Indian agriculture: A study with reference to Chittor District.* Venkateswara. Prof. V. Satyanarayana Murti, Department of Commerce, Sri Venkateswara University College, Tirupati.

7. Sarma, Bhupen. *An investigation into the functioning of Assam Small Industries Development Corporation from 1962 to 1982.* Gauhati. Dr. A.K. Sarma, Former Dean, Faculty of Commerce, Gauhati University, Guwahati.

8. Todi, Bhagawati Prasad. *Sales taxation in North East India.* Gauhati. Dr. D. Bhorali, Prof., Head and Dean, Department of Commerce, Gauhati University, Guwahati.

Home Science

1. Verma, Prabha. *Managerial problems of home makers with special reference to middle income group of Indore City.* Vikram. Dr. (Mrs.) Asha Nimkar, A-7, Yogiraj Colony, Amravati Road, Nagpur.

Management

1. Hingorani, Ashok Rellumal. *A study of job-need conguruence and its impact on behaviour of operatives.* Baroda.

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Instructor in Languages (Adhoc): in German (1); in French (1); in Russian (1); in English (1).

Pay Scale : Rs. 1640-2900:
Computer Operator (1); Technical Assistant (2) in Computer Centre.

The eligibility requirements (as per the U.G.C. norms), and the prescribed application form for each post will be supplied on request on payment of Rs. 5/- by a crossed I.P.O. to the Registrar. Those desiring the said form by Registered post should enclose crossed I.P.O. of Rs. 17/-. The University reserves the right not to fill up the posts hereby advertised or to call only those candidates found suitable by a Screening Committee.

Applications with a crossed I.P.O. of Rs. 20/- in favour of the Registrar, Jiwaji University, Gwalior should reach the undersigned by **20.8.1990**

D.S. Gargava
REGISTRAR

THE MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA
VADODARA

NOTIFICATION No. ADE/2 of 1990-91
Dated: 22nd June, 1990

Applications are invited for the following posts available on temporary basis in the Department of Microbiology and Biotechnology Centre under Biotechnology Information System, in prescribed forms which can be obtained from the University Office **on or before 23.7.90** by sending a request to Officer on Special Duty, M.S. University of Baroda, Vadodara-390 002 alongwith a self-addressed envelope of size 30 cms. × 12 cms. accompanied with a Demand Draft drawn in favour of the Registrar, M.S. University of Baroda Rs. 12/- (Rs. 3/- for members of Scheduled Caste and Scheduled Tribe) for the posts in the Grades with a maximum of Rs. 4,000/- and above, and Rs. 8/- (Rs. 2/- per Scheduled Caste/Scheduled Tribe) for the posts in the Grades with a maximum of Rs. 3999.00 and below or by making payment in cash at the reception counter of University Office for the same during working days only between 11.00 a.m. and 2.00 p.m., amount will be accepted either by M.O. or by Postal Order except in cases of SC/ST where they can send Postal Order of Rs. 3/- or Rs. 2/- as the case may be for the concerned post or pay the amount in cash as stated above. The SC/ST applicants belonging to Gujarat State will furnish a copy of the certificate to that effect at the time of requesting for application form. (The amount of Rs. 12/- and Rs. 3/- as well as Rs. 8/- and Rs. 2/- respectively includes the cost of application form and the application fee.)

The application form duly complete in all respect alongwith necessary enclosures should reach the Officer on Special Duty, M.S. University of Baroda, Vadodara-390 002 **on or before 31.7.1990.**

Sr. No.	Name of the Post	No. of Post/s	Scale Rs.
1.	Information Officer	One post	Rs. 2200-4000
2.	Technical Assistant	One post	Rs. 1640-2900
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S. Bhatnagar
DIRECTOR

ARUNACHAL UNIVERSITY

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No. AU/ADV.394/90 **Dated: 27th June, 90**

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2.	Controller of Examinations	1 (one)	Rs. 3,700-125-4,950-150-5,700/-

Minimum Qualifications

1. A Post-graduate degree with at least 55% marks or its equivalent grade.
2. 10 years experience as lecturer/researcher/administrator in a College/University/research establishment/Institution of higher learning.

   OR

   10 years administrative experience as Assistant Registrar or in a post requiring educational administration/conduct of examinations and allied work carrying a scale of pay of Rs. 2200-4000/- or more.

Note: For the post of Controller of Examinations, candidates with experience of conduct of examinations and related works in educational institutions will be given preference.

In addition to the basic pay, the posts carry the Dearness Allowance as per rules of the Govt. of Arunachal Pradesh which are at par with the Central Govt. rates of D.A. and Special Compensatory Allowance admissible to employees of Govt. of Arunachal Pradesh from time to time.

Candidates appointed will be provided with rent-free accommodation.

Application form and fees

Applications on plain paper (in triplicate) along with attested copies of Certificates in support of qualifications and experience showing candidate's name, date of birth, mailing and permanent address, academic and professional qualifications, administrative/teaching/research experience, publications, and name of the present employer where necessary, should reach the Vice-Chancellor, Arunachal University, Doimukh 791 112, Arunachal Pradesh on or before **10th August, 1990**.

Applications must be accompanied by an application fee of Rs. 20/- (Rs. 10/- in case of SC/ST candidates) in shape of I.P.O. or Bank Draft payable to the Registrar, Arunachal University, Doimukh. Applications should be sent under double cover, inner cover should be sealed and superscribed "APPLICATION FOR THE POST OF " and outer cover should contain the address of the Vice-Chancellor, Arunachal University, Doimukh 791 112, Arunachal Pradesh. Seperate applications need to be submitted for each post.

Persons in employment should apply through proper channel or attach a "NO OBJECTION CERTIFICATE" from the employer.

Interview

Candidates called for interview will be paid Second Class train fare or the actual bus fare by the shortest route on the production of travel documents.

The University reserves the right not to fill-up all the posts advertised. The University also reserves the right to negotiate with suitable person or persons, if necessary who may not have applied formally.

Place: **Dr. J. Nath**
Date : **REGISTRAR**

GOVERNMENT OF INDIA

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Applications are invited from Indian Nationals for the award of fellowships for Doctoral Work in Criminology and Police Science. The number of Fellowships to be awarded is six. The value of each fellowship will be Rs. 800/- per month for the first two years & Rs. 950/- in the third year plus a contingency grant of Rs. 5000/- per annum. The Fellowships are tenable for three years. Departmental assistance of Rs. 3000/- per year will be paid to the Institution in which the fellow is registered for the Ph.D.

QUALIFICATIONS

Post-Graduate Degree (not less than 55% of marks or equivalent grade) in Criminology or Sociology or Social Work or Psychology or Social Anthropology or Public Administration or Political Science or Law with IInd Class Bachelors' degree in aforesaid subjects. The candidate should be registered for Ph.D. Programme with any recognised University in India or get registered within three months of the award of fellowship.

AGE

Prefereably below the age of 30 years.

RULES

Copies of the rules of Fellowship Scheme and prescribed application can be obtained on request from Deputy Director (Research), Bureau of Police Research & Development, Ministry of Home Affairs, Government of India, Block No. XI, 4th Floor, CGO Complex, Lodhi Road, New Delhi-110 003.

DUE DATE

Application in the prescribed form should be addressed to Director General, Bureau of Police Research & Development (MHA), Block No. XI, 4th Floor, CGO Compelx, Lodhi Road, New Delhi-3, superscribing the cover "**Application for DOCTORAL WORK IN CRIMINOLOGY & POLICE SCIENCE**", so as to reach on or before **31.8.90.**

If a candidate is already working in a University or Government institution, he/she should apply through the Head of the Institution in which he/she is working. Every application should be accompanied by all documents mentioned in Application Form.

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Microteaching in Teacher Education

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Value Based Education

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Academic Inbreeding

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Environmental Management

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Centre for Plant Molecular Biology

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Science & Technology Education

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Research Methodology in Area Planning

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Applications are invited for post-doctoral positions in Astronomy, Astrophysics and Cosmology to work in the following areas of research. [More detailed information regarding these research activities are available upon request]:

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EXPERIMENTAL HIGH ENERGY ASTROPHYSICS AND OPTICAL ASTRONOMY: (1) X-ray and Gamma-ray studies of binary X-ray sources, X-ray pulsars, Active Galactic Nuclei and other Compact galactic and extragalactic sources using balloon and satellite-borne instruments. (2) Optical studies of cataclysmic variables and other X-ray active stellar objects using ground-based telescopes. (3) Development of detector systems for an Indian X-ray Astronomy Satellite likely to be launched in early 1990s and other future satellite missions. (4) Low and medium energy gamma-ray studies with an approved joint Indo-Soviet Gamma-ray Astronomy Satellite to be launched in the early 1990s.

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Candidates should send their bio-data, list of publications. proposed future plan of research and the names of three referees familiar with the work to: The Secretary, Physics Faculty, Tata Institute of Fundamental Research, Homi Bhabha Road, Bombay 400 005, India. The letters from the three referees should be sent directly to this address. Applications are considered in June and October each year.

The last date for receiving application is **August 15, 1990**.

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Editor :
SUTINDER SINGH

Value Based Education

Crucial Issues and Misconceptions

Raja Mutthirulandi*

I

The academic environment is now filled with voices of concern for the 'loss of values among the youth'. Educationists have been labouring to work out suitable curriculum that would help development of values in the young minds. The urgent need to give education a 'value orientation' has been recognised by all involved in the process of educational planning and administration. In their anxiety about providing (an urgent dose of) 'value based education' at all levels of learning, some academics are seen developing a basically inexact understanding of the complex issues involved and grossly misguided conceptions about the possible ways and means of 'injecting values in the learners through curriculum'.

A common mistaken notion that has crept in is that values can be 'taught' (intensively) through the contents of some texts 'which either contain or offer ample scope for teaching values'. Some believe (very wrongly, of course!) that inclusion of moral lessons, daily prayer, bhajans etc., in the time-table or routine of the students would help in the transfusion of values through academic structure. Very elementary attempts like prescribing certain books (Will Durant for students of science stream, Russel for commerce students etc.), have also been initiated in some universities. Those who believe in the prescription of a certain kind of texts (contents) are bound to realise soon that their efforts would limit them to only the first and second language components of the degree programmes and nothing could be done by them 'that way' to 'include values' in the main (Major) subjects of students' studies.

It would be appropriate to recall several of Plato's early dialogues that raised the question 'can virtue be taught?'. Though the question has not been fully answered yet, our duty is to look at the question again. Our intention in developing values in the young minds is primarily aimed to make them 'good men'. For a person to become a good man (as distinct from a good doctor, good musician, good carpenter, good engineer etc.), expert 'coaches' cannot help greatly. If 'virtues' or 'values' are teachable, in the way that some people think, we should expect there to exist (in future) experts to 'teach' it and 'examiners' to test progress in it. Acquisition of values, can be compared to one's acquiring the skills in his mother tongue. One has to 'pick it' (mother tongue) from everyone around. Further, values are, ultimately, in a way, related to the standards of conduct. We learn our standards of conduct 'not through appointed pundits'; we learn them from every one in the home, in the streets, in the society. Values, can, after all, be learned (caught) not 'taught'. When a boy wants to learn to ride a cycle, what he has to do is to undergo training in the technique of riding. Elaborate lectures on 'how to ride a cycle' would never put him on the saddle and help him move. Values, similarly, are not imparted through "Professors of Charity, Readers in Probity or Lecturers in Patience". They could be inculcated by examples, training and self training. Values are neither skills nor proficiencies to be developed on the same lines that we normally do for skill, proficiency development etc., in the learners. What then is to be done regarding 'values'?. How, if at all, can 'values' be brought into the process of learning and academic curriculum?

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* *Dept. of English, Periyar EVR College, Tiruchy–620 023.*

II

Aristotle believed that 'the end of the state is not mere life' but 'it is the good quality of life'. The 'good quality of life' cannot be achieved in islands of isolated individuals but can only be constructed in and through the 'little platoons' of human affiliations which ultimately constitute the society. For the attainment of the desired quality of life, the society employs a number of instruments and education is the chief among them.

As a social process, aimed at the flourishing of man and the development of human resources by providing opportunities for them and by removing hampering influences, education aims to create or modify persons who could contribute to the making of a 'good quality of life'.

The composition and alloy from which human life is forged varies in each stage of civilization and so different epochs need different standards to define the 'good quality of life'. Virtues considered to be very important in the previous societies (war, plunder etc., to get wealth) have become obsolete in the changed context. By mastering the art and secret of 'peaceful means', modern societies have attained a steady increase of wealth and a raising of the standards of living. Likewise, the tools employed to achieve productivity have also undergone vast structural and characteristic changes. The present movement is towards increasing productivity output with little inputs of effort, cost, labour, capital etc. 'Economic growth' was the central point around which the value system of the industrial period largely revolved. Currently, we have to foresee the effects of social and technological changes and construct alternative courses (of action) in accordance with the emerging 'value–cost configuration system'.

Further, to sustain social activities, economic growth and to husband human potentials, different periods have 'intended' men of differing capacities. During the dawn of industrialisation, there was more requirement of men of 'motor capacity'. During these days of the emergence of a 'knowledge-based' society, we may be requiring more men of the 'rational capacity'. There is a growing apprehension that due to the overcrowding of industries, machines, science and technology, the 'replacement of man' is in the offing. Warnings have already been issued that the world is going to experience the 'future shock' due to its continued neglect of socio, cultural and psychological values. Frustrations have already crept in that our educational system has been turned into an 'intellectual slum'. Instead of serving as an effective instrument of social change, the educational system is spreading the virus of discontent among the youth and this has greatly eroded the values related to their self-esteem, sense of appreciation, competency to co-operate, integrate and contribute with satisfaction to the welfare of the 'whole' (society).

Considering the potentials of the human mind, the power of knowledge that he has at his command and the technology that he can gainfully employ, it would not be greatly difficult for man to check the process of dehumanisation by developing newer instruments, devising better methods and employing efficient organisation of his own environment. Man has to be constantly vigilant and do his best to avoid the 'perverse efforts' of the 'do-gooder's efforts', aimed to make life easier rather than one lived through 'good effort'. History of commerce has proved that even 'personal greed' (for profit making) can become a positive contributant to the prosperous commonwealth of the society, if regulated properly. By regulating human behaviour in achieving his aspirations, man could still be made to become a 'prakriti'—essentially representing societal aspirations as well. Individual evolution and social betterment can be yoked together if, society provides appropriate instruments from the laboratories of education and the vast fields of culture. Such an yoking (possible to be achieved if 'proper education' is offered 'properly') would enable man to retain his essential (human) identity and continue to rule as ever before (without getting replaced by machines).

III

Societal institutions like education, family, religion etc., have the 'principal task of maintaining, enhancing and transmitting selected subsects of values from generation to generation'. 'Marriage' and 'family' help in the 'passing on' of certain traditional values to successive generations. An institution like education should aim to develop such kinds of values which would help the learner blossom as an 'empowered human' and make him help the society get enhanced 'quality of life'.

To the individual, values will become meaningless, unless possession, nursing, continued practice and development of values are going to be related to his 'achievements' in actual life (viz., societal recognition, better life etc.). A person's 'value' is his 'own preference' of a 'specific mode of conduct 'to an opposite or converse mode. Due to the great presence of one's own preference, the particular value becomes authentic to him and the 'enduring belief' would propel him to see for himself what is good and what is bad and what is desirable and what is undesirable etc., in

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a continuum of relative importance. Values could then be realised by man only in his own acts.

The society and the education system should help by constantly providing set examples of values in the environment. Development of positive values of self-esteem, competence, cooperation, sense of appreciation etc., has to be achieved by providing to the learner opportunities to 'observe values happening (like good neighbours, compassion, generosity etc.), in full view of everyone. The learner should also find for himself the usefulness or desirability of his academic pursuits and benefits of achievement in terms of better recognition, productivity, good quality of life etc. Otherwise the student would find no reason to sustain his interest and effort in the educational process.

A value based curriculum should make the learner believe that he can, he will or he should develop motives for self enhancement and societal-betterment. We have to structure the learning process so as to assist him improve his self-image and make him see for himself that he could link his education with performance in daily life. Such a situation would make him feel empowered to assist and improve prevailing values by his immediate and concrete achievements. When the progress of the learner is transparent, he could be expected to learn and learn well too!

As far as the languages are concerned (Part I & Part II of the undergraduate curriculum), we have to come to grips with the existing realities and emerging trends and develop appropriate strategies, to tackle them. Newer linguistic demands are being made in the job-areas emerging. The need to equip the learner with the 'thinking tools' of problem-solving abilities, scientific and technological literacy etc., are more urgent than his studying Russel or Durant as these tools are going to be crucial specifics in his future areas of operation. Learning for the sake of learning has no appeal in the modern society. The rewards of learning (abilities of employing critical thinking, effective communication, membership in higher reference groups etc.), should therefore be not too far to the sight of the learners.

The contents of the language programmes shall have to be carefully planned, chosen and suitably structured. The 'contents' should be such that enables the learner learn independently and apply them appropriately as he has to be 'on his own' and adjust to the changing concepts and situations after his release from the 'controlled situations of the academic imprisonment.' The contents should be flexible, trans-disciplinary and should not be such that deny liberties of employment of innovative classroom strategies by the teacher. To make language programmes valuable to the students, it is important to structure the learning process in such a way that successful and satisfying communication (application of skills) takes place at every stage of the learning process. Further, in order to increase the value bases for the learners, the potentials of the languages have to be unfolded to them and the learner should be able to turn his skills into 'actuals' and 'real'.

Effective communication, pioneering individuals and the preparedness of the people are some of the tools that have to be tactfully employed to bridge the gulf of generations; to nurse and develop educational and other values. Establishment of participative systems in all our institutions (educational, political, economic, industrial) and their effective working would make the learners (and citizens) strive to better their contributions. The material resources (Like computer, books, audio video facilities for learning) should be made available to all equally on a sincere scale. In a country like ours, where widely divergent behaviour, values, responses related to multiplicity of ethnicities, linguistic races, income strata etc., are visible, inculcation of uniform values may become little difficult and could even turn to be counter-productive. Conservatism may seek to maintain and extend irrelevant values. There may be killing hesitation to 'break the cake of custom' and absolute disagreement in innovating and pursuing newer values related to the developing society. The three 'Ps', parents, peers, patrons (examples, heroes) have to be 'unintentional' models to the learners and make the learner think for himself the virtue of possessing values (rather than 'aping' the elders in actions).

In general, the curriculum should aim at the development of the individual in an irreversible sort. There should be no 'room' for one returning to the 'baser elements' after acquiring higher values and development through education. Mere physical changes (of acquiring some skills) will not help the learner as well as the society in the long run. The sequential process of education and development should ultimately bring forth a flourished human being who will be continuously inspired (not indoctrinated) by values of making the 'good quality of life' possible and abundant in the society. The real value orientation in education will be to make the learner feel that the quality of work that he is going to do in future is not to be determined by what others expect but what he expects of from himself. □

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

Microteaching in Teacher Education

G. Ramachandraiah*

Microteaching in teacher education, offers a new model for improving teaching. It was designed to overcome many of the shortcomings of traditional teacher education programmes, and increase our understanding of the teaching-learning process.

It is a laboratory technique in which the complexities of normal classroom teaching are simplified. The trainee teaches a class of three to five students, the lesson is reduced to several minutes and is used for the practice of one particular teaching skill—lecturing—questioning, leading a discussion, getting response, or using instructional aids, etc. The lesson is recorded on Video-tape and the trainee may hear and see himself immediately after the lesson. The analysis and suggestions of a supervisor who attends the lesson or observes the Video-tape, and other sources of feedback, assist the trainee in reconstructing the lesson. The sequence is practised usually in microteaching laboratory in a teacher training institution or an inservice training programme in regular schools.

The Elements of Microteaching

The micro element is the more important feature of micro-teaching which systematically attempts to simplify the complexities of the teaching process. Before attempting to understand, learn and perform effectively the task of teaching, one must first master the component skills of that task. Short lessons concentrate on one skill. When the trainee is proficient in this skill, it may be combined with other mastered skills in longer lessons. The short micro lesson, by reducing the subject matter to be covered, eases the training process. Mainly there are three important elements of microteaching; they are:

(i) Technical Skills of Teaching
(ii) Feedback Element
(iii) Safe Practice Ground

(i) Technical Skills of Teaching

Teaching skills such as lecturing, questioning, or leading a discussion, are an important feature of microteaching. For example, Allen classifies teaching skills under five general headings: response, questioning, increase of student participation, student involvement, and presentation.

(ii) Feedback Element

The feedback element is another important feature of microteaching. At present feedback in the supervision of pupil-teachers in ordinarily based on a supervisor's recall and selective note-taking. His overall impression provide the basis for subsequent analysis of the pupil-teacher's performance but subjective factors enter into his assessment as they do into the students' ability to recall details of the lesson, and in the absence of objective criteria the student may covertly or overtly oppose the supervisor's evaluations and suggestions.

A portable battery-powered videotape recorder, a camera and a small television monitor comprise the basic videotape recording system. It permits the recording of classroom activities with minimum disturbance to teacher and students. The videotape recorder enabling instant and accurate feedback of classroom interaction (verbal and non-verbal) in teaching in natural environment, the classroom or laboratory, provide a basis for reliable analysis.

(iii) Safe Practice Ground

Providing a safe practice ground is another important feature of microteaching. As a rule the first teaching experience the pupil-teachers have is in the methods courses, but initially a few students have the opportunity of playing the teacher. Moreover, teaching fellow students provides an unreal classroom atmosphere. It is generally assumed that the main teaching experience of future teachers will be gained during the student teaching priod. In practice teaching in an experimental or regular school, where the pupils are required to study approved curriculum, the supervisors are careful to ensure that experimentatio does not harm. The pupil-teacher has no opportunit for try-outs.

The microteaching laboratory seems to provide a safe practice ground for pupil-teaching since they teach relevant subject matter to genuine pupils and because in such teaching in a laboratory exercise, tension is reduced and training is focused on the acquisition of teaching skills and instructional techniques related to pupils with different abilities, aptitudes, characteristic and needs. An opportunity is also provided to maste curriculum material.

(Continued on page 7

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Academic Inbreeding: A Case Study

Narayan Prasad Sharma*

The success of education, in general and of higher education in particular, depends upon the capacity and commitment of the teachers in the institutions of higher learning. Playing a significant role in the teaching-learning process, they are the key to the innovations, and creation and transmission of knowledge. Infact, the quality of higher education depends upon the quality of input (students) and the quality of teachers. It is, therefore, argued that for improvement in the quality of higher education, high calibre and talented persons only should be recruited as teachers in the colleges and universities. Since 'inbreeding' is an important issue concerned with the problem of improving the quality of teachers, it has been dealt herein detail.

The present article seeks to answer the following questions:

(i) What is the extent of inbreeding in the recruitment of university teachers at Lecturer, Reader and Professor level?

(ii) How inbreeding affects the appointment of University teachers?

(iii) How inbreeding can be restrained?

Methodology

The study is based on a survey of the Gujarat University (Ahmedabad) teachers. The requisite information like teachers' academic origin, their professional career, selection procedure etc., was collected through a detailed questionnaire. The questionnaires were mailed to all the 105 teachers imparting general education in the faculty of Arts, Science and Commerce. 81 teachers responded to the questionnaire.

Extent of Inbreeding

Inbreeding has three aspects:

(i) Student of a university being appointed as a teacher in the same university department. This type of inbreeding has been, herein-after, referred to as 'Home-inbreeding'.

(ii) Higher positions in a college/university being filled by those holding lower academic position in that college/university. This aspect of inbreeding, herein-after, has been termed as 'Vertical inbreeding'.

(iii) Students in a college/university coming from a limited region or from a particular community and hence teachers also being recruited from that region or community. This type of inbreeding, here, has been termed as 'Regional inbreeding'.

Here, the first two aspects of inbreeding have been examined at various levels, i.e., Lecturers, Readers and the Professors.

Table-1 : Percentage of teachers of Gujarat University who had been students in the same university department

Level	No. of teachers inbred	Total teachers (responded)	%age of inbreeding
1. Lecturer	23	35	65.71
2. Reader	26	36	72.22
3. Professor	3	10	30.00
Total	52	81	64.19

(i) *Home Inbreeding:*

Table 1 indicates that overall Home inbreeding is very high at Gujarat University. 64 per cent teachers had been associated as students of this university. In other words, 64 per cent teachers hailed from the same university department. Home inbreeding is highest (72%) at Readers' level and lowest at the Professors' level. The percentage of Lecturers, who were inbred, in 66. Thus the hypothesis that 'inbreeding increases with position' is partly correct. It increases from Lecturer to Reader level but declines from Reader to Professor level.

(ii) *Vertical Inbreeding :*

After implementation of the UGC pay-scales throughout India in 1973, all the academic positions in the colleges and universities were reduced to three, namely Lecturers, Readers and Professors, and the designations of the lower positions like Tutors, Demonstrators and Assistant Lecturers were abolished. Now, since the Lecturer's position is the lowest among the teaching posts, no question arises for vertical inbreeding at this level. In this survey, only two existing lecturers of Gujarat University reported that they were recruited as Tutor/Demonstrator initially and were appointed as Lecturer later on.

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Although, there was an open selection for the posts of Readers and Professors through an advertisement on all India basis, 74 per cent of the total teachers recruited at Readers' and Professors' level were from amongst the teachers who were holding lower academic positions in the same university department.

Table-2 : Percentage of Vertical Inbreeding at Readers' and Professors' level in Gujarat University

Level	No. of teachers vertically Inbred	No. of total teachers who responded	%age of Vertical Inbreeding
1. Reader	27	36	75
2. Professor	7	10	70
Total	34	46	74

Table 2 reveals that of the total Readers recruited, 75 per cent were working as Lecturers and among the Professors, 70 per cent were working as Readers in the same university department before their appointment to the higher positions. Thus, one thing is clear from the above analysis that vertical inbreeding is also higher in case of Readers than those of Professors.

The Impact of Inbreeding

Inbreeding affects the quality of teachers adversely as it limits the academic range of ideas. Students repeat what they had learnt from their teachers. It also vitiates the recruitment process by encouraging favouritism in the selection of the university teachers. That is why the large majority of university teachers (49.11% of the total 2144 teachers surveyed[1]) were of the view that inbreeding did not help improve the department and therefore should be discouraged.

Those, who support inbreeding, argue that nothing is wrong with recruiting the best students regardless of the institution they come from. The best may, infact, belong to one's own institution and result in inbreeding. Yet, inbreeding, specially in Indian context, does not result because best belong to one's own institution but because non-academic factors like an individual candidate's contacts with the head of the department and the Professors, political connections and kinship ties etc. play a significant role. Since these factors are more plausible for persons who had been the students of the same university department and had contacts with the head of the department and Professors, they get selected easily. For instance, in case of lecturers in various colleges affiliated to University of Delhi, 75%[2] are the products of University of Delhi. This percentage will even go higher (80% to 85%) in respect of new entrants who joined after 1980s. The explanation for such high rate of inbreeding is that the selection committee, in every college, comprises two or three subject experts from the university department and they prefer their own students. This fact was admitted by the 'Committee to enquire into the working of the Central Universities' in its report (1984) which reads asunder :

> "From the evidence of the distinguished persons whom the Committee met, this is due to the compositions of the selection committees and the role played by the concerned head of the department. We were informed that at the beginning of the academic year when the posts of Lecturers are advertised by different colleges, some of the heads of the departments concerned (who are assisted by another teacher of the same department as an expert) go to the extent of preparing a list even before the selections are held, of persons who have to be accommodated in a particular college."

The Committee further observed :

> "University of Delhi which is an affiliating university has naturally to cater to the Union Territory. This situation has given rise to the impression that the University of Delhi tends to recruit its staff from the Union Territory of Delhi and has thus led to academic inbreeding which is contrary to the primary objective of a central university............Analysis of recruitment of academic staff in the university during the period 1976-1981 reveals that 82 per cent of the posts of Professors and 77% of Readers were filled by internal candidates. In the case of lecturers, 33% were appointed from amongst temporary lecturers and research scholars."

Although it is conceded that the quality of the products of University of Delhi is good, yet it is equally important that one's belonging to the University of Delhi plays a crucial role in his selection as a teacher. Thus, apart from being well qualified, one, aspiring for lecturership in Delhi colleges, should also be the product of University of Delhi. Otherwise, there is no reason, why even the toppers of other prestigious central universities like JNU are not appointed in these colleges. Exceptions may be found here and there, but this is the situation in general. Such practices need to be curbed as a central university like the University of Delhi is expected to have an all India character in the recruitment of teachers.

Conclusion

The 64 per cent teachers, in aggregate, were inbred in Gujarat University. These teachers had been the students of this university at Master degree/Ph.D. degree level. 75% Readers and 70% Professors were working at lower academic positions before their appointment as Reader or Professor. Inbreeding increases from Lecturer to Reader's level but declines from Reader to Professor's level. In such cases, general feeling is that inbreeding does not result because best belong to their own institutions but because the University authorities and heads of the departments prefer to induct their own students into the department. That is why inbreeding should be discouraged and for that the members of the univeristy departments be excluded from the selection committee at the time of appointment of university teachers. Further, it should be made mandatory for the universities that atleast 50 per cent of the appointments to the post of lecturers should be from out of the persons who have taken their qualifying examination from other universities. The recently introduced 'National Qualifying Test' for recruitment of lecturers in colleges and universities is a welcome step but it should only be conducted by a central agency like UGC and the states should not be given the liberty to hold their own tests for recruitment of lecturers.

NOTES

1.Naqvi K.A., Chopra, K. and Kapoor, Asha. *Mobility and Inbreeding*. National Commission on Teachers in Higher Education, NIEPA, New Delhi. 1984, p. 69.

2. Bali, Arun P. *College Teachers: Challenge and Response*. New Delhi, Northern Book Centre, p. 146.

Microteaching in Teacher Education

(Continued from page 4)

The Teaching Models

Acquiring new bahaviour patterns by observation and imitation is recognised as one of the major learning processes for human beings and animals. Tapes or films of teaching models are an important part of the learning process in the microteaching laboratory, and provide the trainee with many opportunities to study desired patterns of teaching behaviour. There are, of course, many styles of good teaching, and hopefully, trainees will develop their own individual style.

Microteaching as an Innovation

While microteaching has been described as an innovation in teacher education, in fact certain of its aspects have been in use in various learning situations. Moreover, it is based on long standing educational theories. For example, the laboratory concept as a training procedure preceding actual field practice is an accepted part of many branches of learning (Ex: Science Laboratories). It was accepted also in teacher training, where certain schools were designed as laboratories for testing new curriculum and instructional materials as practice grounds for new teachers. The microteaching innovation lies in the establishment of specific educational laboratories, rather than in the designation of regular schools as laboratories with the many limitations they impose on experimenting the micro concept which underlies programmed learning computer-assisted instruction is based on previously established learning theories, in both it is assumed that learning is more effective if a complex skill is divided into its components and learnt step by step before it is undertaken as a whole. Other examples of established theories adopted by microteaching are feedback, reinforcement and observational learning through a model. □

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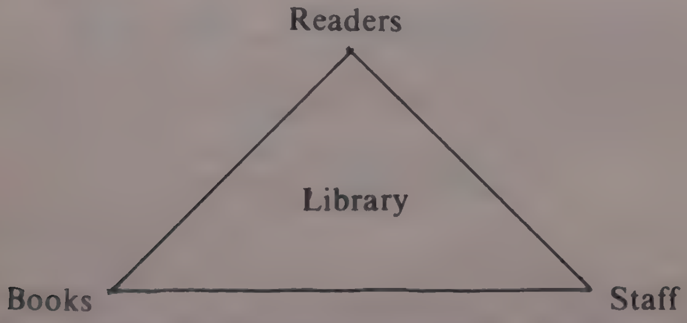
Motivation & Training for the Staff in University Libraries in India

L. S. Ramaiah*

Introduction

Man is the medium of every thing. He is the maker of the information world. In the absence of the *Homo sapiens,* in the words of Karl Popper, the world of information can hardly exist. The French philosopher, Rene Descartes, rightly summed up the importance of man in the world when he said: "*Cogito Ergo sum* (I think, therefore, I am). Information is the logical outcome of human thinking. Library and information systems are the by-products of this human thinking. The functioning and the progress of these systems largely depend upon human beings who can either make or mar them. The three important variables in the library system are books, staff and readers. In the absence of any one of these three, the remaining two cannot form the library. (see diagram)



The Library and information systems have acquired importance in the modern age since information has become an essential resource for decision making and national development. In this context, the library staff, the high priests for collecting, processing, repacking, storing, retrieving and delivering the information to the users, has become hub of the library and information systems. There is, therefore, a need to have the right type of personnel to the right type of job in library and information systems. The staff should be motivated, trained and updated in their professional skills in the changing context of the information explosion to deliver the goods and to achieve the goals expected of the systems.

Motivation and training are required for the staff working in all types of libraries. However, for the present purpose, the discussion is confined to the university libraries only.

Staff in University Libraries

University library is the heart of the university. It provides information and documents of the twin functions of study & teaching and research. The library staff, hence, play an important role in the academic life of the university.

In the post independent era, the university libraries have experienced a tremendous growth in their collection building and other activities. But, the growth of the library staff has not been in proportion to the demands made on university libraries by the increased strength of students, teachers, research scholars and other users in spite of the recommendations made by the various committees of UGC for the provision of adequate staff in the university and college libraries.

If we ask any of the professionals working in the university libraries, most of them, these days, express their dissatisfaction or unhappiness or frustration or disinterestedness. In order to find the reasons for the disinterestedness of the professionals, the following questions come up for discussion:

(i) Why do the professionals behave in a dissatisfied way in their work situations?
(ii) What do the professionals want actually for their job satisfaction?
(iii) What type of environment, human relations and working conditions the professionals expect?
(iv) What service conditions and promotional opportunities do the professionals anticipate?
(v) What pay scales they expect in proportion to their professional qualifications and the nature of work?
(vi) What sort of in-service training and study leave for their professional improvement they need?

The answers to the above questions can be grouped mainly into three categories. They are

(i) Policies of the Administration,
(ii) Motivation, and
(iii) Training

(i) Policies of the Administration

The university administration always gives a step-

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motherly treatment to the university libraries in the following matters:

(a) Finance
(b) Staff
(c) Furniture & Equipment

(a)Finance: Finance is the motive power. It is always a serious problem to the university libraries. Most of the university libraries are not even getting 5% of the university budget in spite of the recommendations of the various educational commissions. Due to the hike in prices of books and periodicals, the libraries are not in a position to purchase the required books, periodicals and equipment. Therefore, the collections and the facilities provided by the library are found inadequate by the teachers, students and the research scholars. This results in their dissatisfaction with the libraries, which leaves the library staff unhappy. Naturally, it weakens the motivation of the library staff.

(b)Staff: Library is a growing organism. New documents continue to be added to the library. Recurring grant enhances the purchasing capacity of the library. In order to organise the documents, the staff is required. But, now-a-days, every university library has inadequate staff. There are constant reminders from the library for providing more number of staff by the authorities. But, the university authorities do not realise the justification made by the librarian in this matter.This results in excessive workload on the staff and create problems in job allocation by the librarian. Each individual is attending different miscellaneous types of works. Hence, there is no job enrichment. This also weakens an individual's motivation.

(c)Furniture & Equipment: Furniture and equipment for the readers as well as staff in university libraries is inadequate. Essential equipment such as typewriters, card duplicators, telex, telephones, xerox machines, calculators, emergency lamps, computers and other stationary articles should be provided to the staff to save their time and speed up their work. If these are not provided, they may dampen their zeal and enthusiasm, finally affecting their motivation.

(ii) Motivation

Motivation is an important factor in human relations. It affects individual behaviour. Motivation interfaces with the individual personality, thinking, learning and intelligence. Motivation can be of two types: natural motivation and aroused motivation. In the library and information systems, the staff should be motivated by the librarian who is the leader of the team. In order to create motivation amongst the staff, the librarian should plan various activities in a balanced way. Some of these activities can be:

(a) proper allocation of job, choosing right person to right job;
(b) balanced supervision;
(c) providing equal opportunities;
(d) inspiring the staff to take up new projects;
(e) maintaining humane and cordial relationship with the staff;
(f) periodical meetings with the staff to find out the difficulties and bottlenecks;
(g) matters of the staff pending with the administration;
(h) provision of proper promotional channels for the staff;
(i) recognition of the work of the staff and encouragement for acquiring higher professional qualifications;
(j) appreciation of good work and provision of incentives; and
(k) increase of manpower with the expansion of activities.

In order to create motivation among the library staff, the librarian should be dynamic, impartial, appreciative and large hearted. He should be ideal to be emulated. The rhythm of work in any university library is set by the librarian himself.

(iii) Training

In the present era, no education is complete with acquisition of a degree. It is a continuous process. The training to the in-service library professionals is two fold consisting of:

(a) internal training, and
(b) external training

(a) Internal Training: The staff should be trained to take responsibility.

(i) they should be provided with an opportunity to work independently in certain matters like documentation work, compilation of bibliographies, indexing and abstracting, etc;
(ii) group discussions and periodical meetings should be arranged to discuss the latest developments in information technology;
(iii) whenever librarian and other senior staff attend seminars/conferences/workshops etc., they should present a report to the rest of the staff;
(iv) whenever, there are revised editions of cataloguing codes and classification schedules, librarian and the senior staff should give training to the other staff in their use; and
(v) the staff should be periodically shifted to various sections of the library for enabling

them to learn the skills involved and broaden their vision;

External Training: The librarian should not monopolise all the training opportunities for himself. He should carefully plan for proper training of his colleagues and subordinates.

(i) periodically, they should be deputed for the in-service courses organised by the Library Associations and other Institutions;
(ii) the library staff such as Dy. Librarian, Asstt. Librarian and professional assistants should be deputed to attend seminars/conferences/symposia, book fairs, book exhibitions etc. Such exposure will update them and motivate them in their work;
(iii) staff should be provided study leave with salary benefits to undertake higher education courses such as BLISc, MLISc, M.Phil and Ph.D. in the field.
(iv) the staff should be encouraged and deputed for training in information technology/computers.

Conclusion

Library work is a team work. Unless the entire team is alert and healthy, the work will suffer. The administrative policies are to be largely conducive to motivate the staff. Therefore, the university authorities should always encourage and inspire motivation amongst library staff. The librarian, the immediate supervisor on the spot, has to carefully plan everything relating to the manpower required in the library providing all inputs for the harmonious working of the staff. The library staff when they get proper training and promotional opportunities will get job satisfaction and achievement in their career. This will motivate them to dedicate to their work with more vigour.

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Convocation

The Quest for Step-Mother

"My quest for step-mother is not complete; yet I feel that our own conscience is acting as step-mother. We shed tears at the murderous assaults inflicted to our near and dear ones only and not for all the innocent victims of violence. Really we who run to see a fire, have not the same emotions as the man whose house is on fire," said Hon'ble Rajmohan Gandhi, Member, Rajya Sabha, while delivering the Convocation Address at the Second Convocation of the Kanpur Vidya Mandir Mahila Mahavidyalaya, Kanpur. "We must search for our conscience and ask ourselves about our own duty. If we observe silence for few minutes we can hear the call of our inner conscience, which will direct right channel for our action," he added. Excerpts

The communal riots, violence and unrest have become the salient features of the modern times. Human life is at stake. And this life has to be saved and protected at any cost.

Yesterday, I was in Amethi, where I met a young man of thirty five years. He was a cancer patient and the disease had reached an advanced stage. He told me that when he was in great pain, he prays to God to end his life. The calmness and serenity on his face depicted the fact that death which gives solace and rest to the tiresome journey of soul is equally important. Our religions also advocate the same fact.

While representing the Indian Delegation in Geneva at the U.N. Conference of Human Rights Commission, I met our ambassador Mr. Kamlesh Sharma who narrated the contents of Dr. Raymond Moorie's book "Life After Life". Dr. Moorie is a doctor and he has recorded the last outbursts of some of his patients belonging to different castes and creed, religions, occupations, sex and age. They all had the identical experience of a beautiful region with celestial light and melodious music. Meanwhile Mr. Kamlesh Sharma was reminded of his seven year old child, who became victim of some serious disease. He also told his mother that he saw a beautiful enchanted place with heavenly light all pervading. I found close affinity between the experiences of the child and that of the cancer patient.

In my opinion, there is one thing which is greater than life itself and it is love. This love has the power which can control violence to a great extent and similarly a great many problems may be solved. Government is blamed for not giving sufficient security and safety to people. But sometimes the meaning of security changes, altogether. On the 31st Oct, 1984, it was security people of Late Prime Minister Mrs. Indira Gandhi, who assassinated her and everybody is very well acquainted with the disastrous consequences that followed. Security and life both are important but the most important thing is 'Love'. Love has many aspects which became clear to me when I was studying the biography of Sardar Vallabh Bhai Patel. A few incidents in his life prove that duty and sacrifice are closely related to love. Behind the greatness of this noble figure, we witness his immense spirit of sacrifice, love and devotion to Gandhiji, I have had the privilege to visit different states of the country. Everywhere, there is a complaint receiving the step-motherly treatment. There is no fault with the step-mother. But I am taking her in the sense the society as a whole accepts her. The question that haunts my mind is—who is that step-mother. Though my quest for step-mother is not complete, yet I feel that our own conscience is acting as step-mother. We shed tears at the murderous assaults inflicted to our near and dear ones only and not for all the innocent victims of violence. Really we, who run to see a fire, have not the same emotions as the man whose house is on fire.

I relate an incident from my life. It was the year 1950 when I was a fifteen year old boy, studying in Delhi. My father was the editor in the Hindustan Times. One day the sub-editor of the Hindustan Times came to contact my father. He had the teleprinted sensational news, "Mr. Liyaqat Ali Khan, the Prime Minister of Pakistan shot at". I immediately reacted and exclaimed, "Very good, hope he is killed". But I felt ashamed and degraded when the sub-editor cast his grievous glance at me. Such abject feeling arose in my heart just because he was a Muslim and the Prime Minister of Pakistan. Had he been some other person, such shameful feeling, I am sure, would not have entered my mind. Such feeling sometime or the other definitely enters the heart of every person. Is not this trifle experience important in the present context of the world.

(Continued on page 14)

Research Methodology in Area Planning

The Department of Earth Sciences, Manipur University recently organised a month-long Training course in Research Methodology in Area Planning. Sponsored by the Indian Council of Social Science Research, New Delhi, the course was attended by 30 college teachers from Manipur and Assam, research scholars from Manipur, Gauhati, Kanpur, Ranchi and Meerut universities, besides an assistant architect from the Planning and Development Authority, Manipur.

The course content included the conceptual base of area/regional planning—its approaches, techniques and methodology, concept of growth poles and growth centres, rural development strategy with emphasis on poverty alleviation programmes, quantitative and cartographic techniques, baseline household survey methods, preparation of research proposals and designs, environmental planning, and planning for agricultural and tribal area development, regional industrial complexes, infrastructural planning, monitoring and evaluation, rural industrialisation, poverty and micro-level planning, research priorities in area planning studies and final report writing.

Inaugurating the training course Shri Chintamani Panigrahi, the Governor of Manipur and the Chancellor of the University, stressed the need for area planning for the balanced development of various parts of the state and the country. He asked the participants and the faculty for developing the backward areas.

Professor V. K. Ahluwalia, Vice-Chancellor, Manipur University, who presided over the inaugural session, complimented the Department of Earth Sciences for organising the training course in the larger interest of the researchers and the region. In his valedictory address Dr. M. M. Mathur, Director, Indian Council of Social Science Research, New Delhi, emphasised the role of the ICSSR in promoting area planning researches in the country. He distributed the certificates to the participants after completion of their training in research methodology. He invited the participants to submit research proposals drafted as per guidelines discussed during the course period for financial assistance/support of the ICSSR.

Symposium of Senior Academics

The Academic Staff College of Aligarh Muslim University organised a two-day Symposium of Senior Academics on July 7-8, 1990 to familiarize the Principals of Colleges and Heads of University Teaching Departments with the role and importance of Academic Staff Colleges—the training provided by them to young and senior teachers and to emphasize upon them the need to relieve the teachers as and when selected to attend Academic Staff Orientation Programmes and Subject Refresher Courses.

Inaugurating the Symposium, Prof. Yashpal, Chairman, UGC, emphasized the importance of higher education and lauded the role played by the Academic Staff Colleges during the short period of their existence. He said that the Principals of Colleges and Heads of University Departments should encourage teachers to join the training programmes. Even in Colleges where there was only one teacher in a subject some adjustment could be made between various colleges in the same town to help all teachers attend these programmes. He concluded on the idealistic and impassioned exhortation to 'build dreams.'

In his keynote address, Prof. Moonis Raza, former Vice-Chancellor of Delhi University and currently Honorary Director, Institute of South Asian Affairs at Jamia Hamdard, Delhi maintained that the Academic Staff Colleges should be part of the normal element of University life.

Prof. Ashok Bal, Vice-Chancellor, touched upon the high ideals of the founder of AMU, Sir Syed Ahmad Khan and traditions of secularism and hospitality which are the hall marks of this campus. He expressed deep appreciation of the good work being done by Prof. Usman M. Adhami, the founder Director and his colleagues at the Academic Staff College, Aligarh.

The topics discussed at the symposium included: (1) National Policy on Education and Academic Staff College; (2) Teachers' Training Programme: Role and Importance; (3) Selection procedure and training requirement; and (4) The Feedback Mechanism.

Over 20 Principals of Colleges and about 30 Heads of University Departments attended the symposium which was addressed among others by Prof. Rais Ahmad, Prof. Shakti Rais Ahmad, Prof. Rajeshwar Prasad, Prof. Irfan Habib and Prof. M.V. Mathur, who also delivered the valedictory address.

An Omission

The article, "Education, Women Entrepreneurship and National Development" that appeared in our issue of 16th July, 1990 was authored by Shri K.K. Bajaj, Dean of Colleges cum Director, College Development Council, Himachal Pradesh University, Shimla. The omission of the name of the author is deeply regretted.

Seminar on Environmental Management

A seminar on Environmental Management was recently organised at the Gauhati University. Sponsored by M/s Envirotech Instruments (East) Pvt. Ltd., Calcutta and organised jointly by the Dept. of Environmental Science, Gauhati University and the Society for Environmental Protection, Education and Research (SEPER), the Seminar was inaugurated by Prof. (Dr.) D. P. Barooah, Vice- Chancellor, Gauhati University.

Dr. P. C. Bhattacharjee, Reader, Dept. of Zoology, Gauhati University, spoke about the problems of wetland and water fowl conservation with special reference to the degrading condition of Dipor Beel, located near Gauhati University. Shri D. P. Neog, Chief Conservator of Forests, Govt. of Assam spoke about the forest management and the role of social forestry in environmental conservation in Assam. The role of green belts for environmental management was explained by Dr. D. N. Rao, Professor of Botany (Retd.), Banaras Hindu University. Through slides he gave many examples of air pollution reduction by green belts in India. Shri K. Chakravorty, Sr. Analyst, Board for Prevention and Control of Air and Water Pollution, Assam, spoke about the role of State Board in environmental management by controlling the air and water pollution in Assam. Shri A. K. Borah, ICSSR doctoral fellow, Dept. of Political Science, Gauhati University, discussed the environmental situation in northeast India with special reference to Assam. Dr. G. D. Agarwal, Prof. (Retd.), Civil Engineering Dept., I.I.T. Kanpur and presently technical adviser to M/s Envirotech Instruments Pvt. Ltd., New Delhi, explained how the sites were selected for industries and other developmental activities for better environmental management. Besides these lectures, a live demonstration of "smoke-meter" manufactured by M/s Envirotech Instruments Pvt. Ltd., was given by technical experts. Over hundred participants attended the Seminar.

Centre for Plant Molecular Biology

A Centre for Plant Molecular Biology is proposed to be set up at the School of Life Sciences of the Jawaharlal Nehru University at a total cost of Rs. 2.5 crores. At this Centre, attempts will be made to understand the molecular architecture of genes and their regulatory circuits, especially the defense genes, storage protein genes and genes involved in nitrogen metabolism.

An interesting aspect which will be focused at the proposed Centre is about the 'signals' that control plant growth. For example, it would be investigated as to how light, nutrition, hormones transduce message to regulate different genes and in turn plant development. Attempts will be made to transfer genes into economically important plant crops to improve their nutritional quality.

Studies on tissue culture will also be carried out at the Centre because it is now possible through tissue culture to grow millions of plants from a small plant part. This technique can be exploited for rapid multiplication of elite species and for inserting suitable genes in such plants to make them more useful to mankind.

The specific project proposals that will be undertaken at the new Centre are:

1. Studies on biochemical and molecular basis of differentiation and transformation in *Brassica juncea, B. Campestris* and *Cicer arietenum* (Sipra Guha-Mukherjee and Rajendra Prasad).
2. Role of calcium and protein phosphorylation as signals in light mediated gene expression (S.K. Sopory).
3. Expression of plant defense gene: Study of upstream regulatory DNA elements and their trans-acting protein factors (K.C. Upadhyaya).
4. Isolation and characterization of genes encoding storage proteins from *Amaranthus* (Asis Datta).

With the development of newer molecular biology techniques and recombinant DNA technology, there has been a renewed interest in understanding the processes involved in the regulation of plant growth, development and physiology at the molecular level. This, it is believed will enable scientists to engineer different plants to satisfy the evergrowing needs of the human society.

Although initially some of the fundamentals of genetics and biochemistry were discovered in plants, yet the major discoveries in biology came from the work on microorganisms and animal systems. It is only now that attention has been diverted to plant systems, as scientists realized that in order to meet the growing demands of food, it is necessary not only to increase food production by conventional breeding but also to improve the existing varieties of plants to make them more tolerant to heat, drought, and diseases, besides increasing the qualities of the grains. These could be achieved by genetic engineering and tissue culture. Through these techniques it would be possible to isolate useful genes with its controls, from a plant (may be wild) and insert them into crop plants.

Plant Molecular Biology is a comparatively new area which has aroused the interest and attention of scientists all over the world because of its tremendous potential for improving economically important plant crops and solving agriculturally important problems facing the mankind today. As a result, many institutions and universities all over the world, have now launched Plant Molecular Biology programmes and many new journals have been started.

News from Agril. Varsities

Pressure Irrigation in Agriculture

The National Workshop on Pressure Irrigation in Agriculture was recently concluded at Tamil Nadu Agricultural University (TNAU), Coimbatore. Sponsored by Directorate of Extension, Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India and organised by Water Technology Centre, TNAU, the workshop was attended by thirty trainee participants from Gujarat, Madhya Pradesh, Orissa, Karnataka and Tamil Nadu and the trainees of INCOFED.

Dr. S. Jayaraj, Vice-Chancellor of TNAU in his valedictory address emphasised on meticulously understanding the value of every drop of water and its efficient use in the present day agricultural system in our country.

He said, "Water is the most critical input and the crops' response to all other inputs is mainly dependent on the availability of right quantity of water at the right time. Every crop has its tolerance limits, within which the moisture variations do not affect the crop yield and it is through proper Water Management practices that the moisture availability in the root zone of the crop, could be maintained within the crop tolerance limits. Irrigation is most important for economic growth in rural areas in a country which depends mainly on agriculture"

Dr. S. Jayaraj impressed upon the scientists that with ever growing importance to agricultural production, importance should be given to pressure irrigation systems. The technology of application of agricultural chemicals through drip and sprinkler irrigation systems for conditions of intensive irrigated agricultural and horticultural production was of recent development. This technology, he said, not only conserved water but also allowed more effective management of water and chemicals when compared to the other irrigation methods.

Dr. S. Jayaraj wanted that more of modern irrigation gadgets be developed and manufactured and the quality of such gadgets should be ensured. He highlighted the success of drip irrigation for coconut, grapewine, and banana in Tamil Nadu and during his recent visit to TNAU. His Excellency the Governor was impressed by the effective functioning of pressure irrigation systems with commercial floriculturists around Coimbatore.

Scientific Workers' Conference at TNAU

The 56th Annual Scientific Workers' Conference was recently inaugurated at the Tamil Nadu Agricultural University (TNAU), Coimbatore by Dr. S. Jayaraj, Vice-Chancellor, TNAU. In his inaugural address, Dr. Jayaraj emphasised on labour saving devices, increasing the nutrient value of our diet, increasing the cropping intensity, and effective utilisation of waste water and brackish water. He also emphasised efficient water use planning to promote Integrated Farming System, which was the need of the day. Outlining the importance of farm implements and machinery in agricultural development, the Vice-Chancellor promised to make arrangements for fabrication and supply improved farm machineries to a larger extent.

Smt. S. Malathi, Director of Agriculture, lauded the efforts of the University in organising this conference in which the scientists and field level functionaries joined together to formulate need-based research and development programmes. Shri L. R. Sailo, Director of Oilseeds, emphasised the need for increasing the productivity of oilseeds. Shri V. Palanichamy, Joint Commissioner of Sugar, outlined various dimensions of sugar and the role of improved technologies in it. Shri Sowsamuthu, Chief Engineer, emphasised the need for augmenting research on 'Energy', the most important input in agriculture and the need for taking up Agricultural Processing to a large extent.

The Quest for Step-Mother

(Contd. from page11)

Similarly in 1956, I went to Scotland to learn journalism. At that time, there was war among Egypt, France and England. In spite of Gandhiji's teachings of non-violence, I failed to control my feelings and became sadistic. The damage and destruction of ancient buildings of Rome, delighted me. But now I have sufficient love and feelings for Pakistan or England.

Forgetting our differences, we must widen our hearts so as to assimilate all the people, belonging to different castes and creeds. We must realize that the world has walked into my heart.

Each night while going to our beds we thank God for passing one more safe and secure day amongst our family members. If we mark the disturbed and riots-affected areas on India's map, there will not be too many blank and peaceful spaces on it. So in the modern world, we must search for our conscience and ask ourselves about our own duty here. If we observe silence for a few minutes, we can hear the call of our inner conscience, which will direct the right channel for our action. This will give birth to the feeling of 'Love' which will play an important role in our life.

News from UGC

Countrywide Classroom Programme

Between Ist August to 8th August, 1990 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 Noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission
6.00 a.m. to 7.00 a.m.

1.8.90

"Membrane Technology Applications"
"Ambassadors of Culture"
"Silk for the Desert-II

2.8.90

No Telecast

3.8.90

"Apollo—17 On the Shoulders of Giants"
"Defence Mechanism"
"Let Us Save Ourselves: Pollution-II"

4.8.90

"Clay Work"
"Alcoholism"
"What is Cerebral Palsy?"

5.8.90

No Telecast

6.8.90

"An Enemy Called Izonos"
"Export Management"
"Importance of Fisheries in Our Life"

7.8.90

"Chemical Kinetics-V"
"Basic Camera Controls"
"Worldnet Medicon 86-II"

8.8.90

"Rural Sanitation"
"Early Andhra Coins"
"Taming the Double Helix"

2nd Transmission
12.00 noon to 1.00 p.m.

1.8.90

"Solar Research-IV"
"Handle With Care"
"Plant Fossils-I: Nature's Own Museum"

2.8.90

No Telecast

3.8.90

"Astronomy Through the Ages-I"
"Visual Perception"
"Micro-scopic Life in Soil"

4.8.90

"Chinese Porcelain"
"Naad Sagar Manthan"
"The Man Who Ventured—Sir Edmund Hillary"

5.8.90

No Telecast

6.8.90

"Oscillations of Waves"
"Management 6: Organisation Methods"
"Fertilizer, Fertilizer, Fertilizer"

7.8.90

"The Hydrogen Spectrum"
"Visual Profile of Countrywide Classroom: A Case Study"
"Japanese Encephalitis"

8.8.90

"Solar Research-V"
"Why History?"
"Plant Fossils-II: A study of Nature's Museum"

Seven Technology Deptts. Upgraded

The University Grants Commission has upgraded seven engineering and technology departments at five different universities and deemed to be universities to the status of Centres of Advanced Study (CAS). The departments are: the Chemical Engineering Division at the University Department of Chemical Technology (UDCT) of the University of Bombay; Metallurgy, and Electrical Engineering (Indian Institute of Science, Bangalore); Mining Engineering (Indian School of Mines, Dhanbad; Production Engineering and Electrical Engineering (Jadavpur University, Calcutta) and Mechanical and Industrial Engineering (University of Roorkee, Roorkee). This is for the first time that Departments of Special Assistance (DSA) in the faculties of engineering and technology have been upgraded on merits to the level of centres of Advanced Studies (CAS).

Upgraded on the basis of their academic achievements as Departments of Special Assistance (DSA), the seven departments will be provided with special grants of over Rs. three crore to continue teaching, research and extension activities during 1990-95 in their respective frontier areas of specialisations including multi-phase reactors/reactions, separation processes, noise pollution, high energy density manufacturing processes, material processing, innovative mining system, computer system, and parallel processing for power and control systems analysis and simulation, etc.

The programme of instituting Centres of Advanced Study in the university departments was initiated in 1963-64 with the main objective to raise standards of postgraduate teaching and research. The primary aim of the scheme is to encourage pursuit of excellence. It is intended to provide substantial assistance in terms of competent manpower and essential equipment to a number of university departments carefully selected on the basis of their work and achievement.

News from Abroad

Science and Technology Education Act 1990

A bill aimed at promoting and improving science and technology education has been endorsed by the American Council on Education (ACE) and 11 other higher education associations.

The Science and Technology Education Act of 1990 calls for the development of training programmes for advanced technology occupations at associate degree granting colleges and the establishment of centres of excellence in advanced technician training and undergraduate education in math and science. Centres would serve as national and regional clearinghouses and help colleges upgrade their education programmes.

The measure would also encourage partnerships in science education between community colleges and secondary schools and two-year and four-year institutions.

The bill would expand the number of National Science Foundation (NSF) Graduate Fellowships, particularly those awarded to women and minorities, and establish awards to recognize teachers who make outstanding contributions to undergraduate science instruction.

NEW TRENDS IN THE FRENCH SOCIAL SCIENCES

The writings of French scholars have greatly influenced our current thinking in the social sciences. *New Trends in the French Social Sciences* is a series of anthologies of important writings translated into English—many of these for the first time. Selected and edited by leading Indian and French academics, the essays are translated by Indian scholars.

French Studies in History Vol. I: The Inheritance Maurice Aymard and Harbans Mukhia (eds.)	
Hardbound	Rs. 125.00
Paperback	Rs. 60.00
French Studies in History Vol. II: The Departures Maurice Aymard and Harbans Mukhia (eds.)	
Hardbound	Rs. 195.00
Paperback	Rs. 105.00
The History of Sciences Pietro Redondi with P. V. Pillai (eds.)	
Hardbound	Rs. 110.00
Paperback	Rs. 60.00

Orient Longman
3-6-272 Himayatnagar, Hyderabad 500 029.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857–1970 and 1970–75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertion is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

ADDITIONS TO AIU LIBRARY

Aggarwal J.C. *Education in India: Policies, programmes and development: Global perspective.* Delhi, Doaba House, 1989, 154 p.

Aggarwal, J.C. and Aggarwal, Sarita. *Education in India: A comparative study of States and Union Territories.* New Delhi, Concept, (c 1989). 120 p.

Association of Indian Universities. *Bibliography of doctoral dissertations 1985-86: Natural and Applied Sciences.* New Delhi, Association of Indian Universities, 1990. Liii, 517p.

Association of Indian Universities. *Handbook of Medical Education 1990.* New Delhi, Association of Indian Universities, 1990, 254p.

Basu, B.D. *History of education in India under the rule of the East India Company:* New Delhi, Cosmo Publications, 1989. 208p.

Boys, C.J. and others. *Higher education and the preparation for work.* London, Jessica Kingsley Publishers, 1988. 240p.

Chaklader, Snehamoy. *Sociolinquistics: A guide to language problems in India,* New Delhi, Mittal Pub., 1990. 322p.

Chauhan, C.P.S. *Higher education in India: Achievements, failures and strategies.* New Delhi, Ashish Publishing House, 1990. ix, 220p.

Dale, Roger. *State and education policy.* Philadelphia, Open University Press, 1989. 174p.

Farmer, Bob and others, *Ed. Aspects of educational and training technology: Making learning systems work.* V23. London, Kogan Page, 1990. 271p.

Ghose, S.C. *Teacher-student relationship and its impact on student unrest.* New Delhi, Northern Book Centre, 1989. 131p.

Ghosh, J. *Higher education in Bengal: Under British rule.* New Delhi, Cosmo Publications, 1989. 242p.

Gupta, B.M. and Nathan, S.S., *Ed. Handbook of libraries, archives and information centres in India.* 13v. V.7. Science and technology information systems and centres. Delhi, Aditya Prakashan, (c1990). 289p.

Gupta, B.M. and others, *Ed. Handbook of libraries, archives and information centres in India.* 13v. V.8. Social science information systems and centres. Delhi, Aditya Prakashan, (c1990). 276p.

Gupta, K.M. *Moral development in school children.* Gurgaon, Academic Press, 1989. 230p.

Isvarmurti, V. *Oxford and other essays on education.* Bangalore, Vadamalai Books, 1989. xiii, 274p.

Kanwal, Ramlal, *Motivation towards adult education.* New Delhi, Criterion Publications, 1990. x, 80p.

Kamlesh, M.L. *Atheltic personality: A psychological probe.* Delhi, Surjeet Book Depot, 1980. xii, 284p.

Kapil, Fathima Kutty. *Education and social change in India: Vizagapatnam district.* New Delhi, Radiant, 1990. xv, 118p.

Khan, Mohammad Sharif. *Education, religion and the modern age.* New Delhi, Ashish, 1990. viii, 185p.

Krishnamurthy, V. and Parameswara Ram. *Educational dimensions of physical education.* Delhi, Sterling, 1980. xiii, 249p.

Manju Bala. *Leadership behaviour and educational administration.* New Delhi, Deep & Deep Publications, 1990. 250p.

Mukhopadhyay, M. *Ed. Educational technology: Challenging issues.* Delhi, Sterling, (c1990). x, 227p.

Nayar, D.P. *Towards a national system of education: Educational development in India 1937-51.* New Delhi, Mittal, 1989. 435p.

Pritam Singh. *Handbook of pupil evaluation*. New Delhi, Allied Publishers Limited, 1989. 508p.

Puran Singh. *Problem of education among scheduled castes*. New Delhi, Mittal, 1989. xi, 163p.

Rassekh, S. and Vaideanu, G. *Contents of education: A worldwide view of their development from the present tot the year 2000*. New Delhi, Sterling, (c 1987). 296p.

Singh, M.K. *Indian women and sports*. Jaipur, Rawat Publications, 1990. xvi, 216p.

Sivayya, K.V. and others. *Commerce and management education in India*. New Delhi, Ashish Publishing House, 1990. 293p.

Verma, Yoginder S. *University management and administration*. New Delhi, Deep & Deep Publications, 1990. 308p.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities.

HUMANITIES

Philosophy

1. Adinarayana, P. *Mukti in Visistadvaita Vedanta: A critical study*. Venkateswara. Dr. K. Munirathnam Chetty, Reader, Department of Philosophy, Sri Venkateswara University College, Tirupati.

2. Gopinath, Sudha. *Analytic philosophy with special reference to moral philosophy*. Bangalore. Dr. Srinivasa Rao, Prof and Head, Department of Philosophy, Jnana Bharathi Campus, Bangalore University, Bangalore.

3. Remi Rajani, Kalangi. *The ideal of human unity: A critical study in Sri Aurobindo's integral philosophy*. Andhra.

4. Varalakshmi, Moganty. *The concept of justice: A philosophical analysis with reference to Plato, Aristotle Hegal, Marx and Engels*. Andhra.

Language & Literature

English

1. Gupta, Ben Venuta. *The minor poems of Shri Aurobindo: A thematic study*. Vikram. Dr. D.C. Tatke, Department of English, Vikram University, Ujjain.

2. Jayachandran, Laila. *Indian English poetry in the perspective of Indian poetics: A study of Toru Dutt, Sarojini Naidu and Kamla Das*. JNU. Dr. Kapil Kapoor, Assoc. Prof, Centre of Linguistics and English, Jawaharlal Nehru University, New Delhi.

3. Mallick, Madan Mohan. *The theatre of commitment: A study of the plays of Edward Bond*. Berhampur. Dr. B.K. Tripathy, Prof, Department of English, Utkal University, Bhubaneswar.

4. Radhakrishnan Nair, D. *Narrative technique in Milton and Ezhuthachan with special references to Paradise Lost and Adhyatma Ramayanam*. Kerala. Dr. N. Viswanathan, Reader, Institute of English, University of Kerala, Trivandrum.

5. Rajender Prasad, Chiliki Appala. *The function of Enigme in Arun Joshi's novels*. Andhra.

Sanskrit

1. Karam Singh. *Dayanandiya vangmai mein shaddarshan vishyak sandarbhon ka alochnatmak adhyayan*. Panjab.

2. Leela, S.R. *The historical poems of the South Indian Sanskrit poetesses*. Bangalore. Dr. K. Rajagopalachar, Prof. and Head, Department of Sanskrit, Mysore University, Mysore.

3. Locar, Ram Krishna. *Maharshi Dayanand ke granthon mein pratipadit arthik vichar dhara*. Panjab.

4. Prema Kumari Amma A. *Brahamatattvaprakasika: A study. Kerala. Dr. R. Karunakaran, Director (Retd), Centre for Vedanta Studies, University of Kerala, Kariavattom.*

Hindi

1. Agnihotri, Dev Dutt. *Narender Kohli ke katha sahitya mein Bhartiya sanskritik chetna*. Panjab.

2. Agrawal, Sushila. *Swatantrayottar Hindi natak mein algav-bodh*. Punjab.

3. Arora, Manjit Kaur. *Hindi Sufi kavyon kee prabandh yojna*. Vikram. Dr. S.S. Pathak, Prof. and Head, Department of Hindi, Vikram University, Ujjain.

4. Chaudhury, Dinanath. *Vidyapati padavali mein bimba-vidhan: Bhashik evam kavya shastriya nirupan*. Calcutta.

5. Gupta, Rajani. *Sathottar katha sahitya mein parvasi jeevan-mulya*. JNU. Prof. (Mrs.) Savitri Chandra, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

6. Harikumar, M.V. *Aitihasik paripreksh mein Dr. Ram Kumar Verma ke natakon ka adhyayan*. Bangalore. Dr. T.G. Prabhashankar, Reader, Department of Hindi, Jnana Bharathi Campus, Bangalore University, Bangalore.

7. Kanchan Lata. *Dwijender Lal Rai ka Chander Gupta tatha Jaishankar Prasad ka Chandergupta Maurya tulnatmak adhyayan. Itihasik evam sanskritik drishti se*. Panjab.

8. Khanna, Monika. *Manav mulyon ke sandarbh mein Jainender Kumar ke upanyason ka adhyayan*. Panjab.

9. Koshul Kishore. *Agyeya kee kavyagat saundarya chetna*. Vikram. Dr. Rammurti Tripathi, Prof. (Retd), Bank Colony, Devas Road, Ujjain.

10. Krishnakumari, B. *Acharya Nandadulare Vajpai ka sameeksha vangmaya*. CUST. Dr. N. Raman Nair, Prof. and Head, Department of Hindi, Cochin University of Science and Technology, Cochin.

11. Mishra, Subhashchandra. Bhakti-andolan aur bhaktikavyon ke *sandarbh mein Kabeer kee bhakti ka adhyayan*. Patel Dr. A.P. Mishra, Reader, Department of Hindi, Sardar Patel University, Vallabh Vidyanagar.

12. Mittalkod, Sidramappa M. *Sant Manikprabhu: Vyaktitva evam krititva*. Gulbarga.

13. Mudliar, Pratibha Ramachandra. *Naresh Mehta ke kavya ka*

anusheelan. Karnatak. Dr. T.R. Bhat, Reader and Chairman, Department of Studies in Hindi, Karnatak University, Dharwad.

14. Pandit, Jagannath. *Nagarjun ka kavya aur yug, anta: sambandhon ka anusheelan*. Patel. Dr. S.K. Mishra, Prof. and Head, Department of Hindi, Sardar Patel University, Vallabh Vidyanagar.

15. Rao, Somnath. *Hindi khand-kavya parampara: Rameshwar Dayal Dube ka yogdan*. Osmania.

16. Soochik, Jagdish Prasad. *Bhaktikaleen kaviyon ke kavya mein atmakathatmak ansh: Kabir, Jayasi aur Tulsi ke vishesh sandarbh mein*. HS Gour. Prof. K.B. Tewari, Principal, Govt. Degree College, Seoni Malwa, Hoshangabad.

17. Tapadiya, Uma. *Upanyaskar Renu tatha Nagarjun ke rachna sansar ka tulnatmak adhyayan*. Vikram. Dr. Jaikumar Jalaj, Principal, Govt. Arts and Science College, Ratlam.

18. Vikramjit. *Adhunik Hindi kavya mein rajnaitik vyangya*. Vikram. Dr. Harimohan Budhauliya, Reader, Department of Hindi, Vikram University, Ujjain.

Urdu

1. Iqbal Ahmed. *Historical novels in Urdu literature*. Bangalore. Dr. Fahmida Begum, Director, Ministry of Human Resource Development, Department of Education, New Delhi.

2. Mahnoor Zamani Begum. *Junobi Hind kee mutasawafana masnavayan*. Bangalore. Dr. Fahmida Begum, Director, Ministry of Human Resource Development, Department of Education, New Delhi.

3. Syed Zaibunnisa Begum. *Professor Mohammed Mujeeb : Bahaisiat Khaka nigar*. Venkateswara. Prof Raziaddin Ahmed, (Retd), Gulifishan, 12-3-458/3, Mohidipatnam, Hyderabad.

Bengali

1. Bakshi, Panchugopal. *Lokayata jeevan pratibesh: Rabindranather natya sahitya*. Calcutta.

2. De, Madhup Kumar. *Jangal mahaler lokakatha*. Calcutta.

Arabic

1. Khan, Mohammad Anwarullah. *A critical edition of Al-Bulgha Fi Tarajim-ik-Aimmatin Nahw-i-Wal-Lugah*. Osmania.

Tamil

1. James Deva Kamala Arumai Raj D. *Editing and study of Oti Murivu Cara Cuttram*. Kerala. Dr. K. Nachimuthu, Prof. Department of Tamil, University of Kerala, Kariavattom.

2. Thiagamani, S. *Harichandra Puranam and the book of job: A comparative study*. Panjab. Prof. Devasangeetham, Department of Tamil, Sri Venkateswara University College, Tirupati.

Malayalam

1. Sulekha, M.T. *A study in literary principles based on Professor Mundassery and Kuttkrishna Marar*. Kerala. Dr. P.V. Velayudhan Pillai, Prof., Department of Malayalam, University of Kerala, Kariavattom.

Telugu

1. Munirathnam Naidu, D. *The treatment of the story of Usha and Aniruddha in Telugu literature*. Venkateswara. Prof. G. Nagaiah, Department of Telugu, Sri Venkateswara University College, Tirupati.

2. Nagi Reddy, B. *Telugulo Mahabharata natakalu: Comparative study*. Osmania.

Geography

1. Mikir, Phukan Chandra. *The Karbis: A spatio-temporal analysis in tribal geography*. Gauhati. Dr. Mohamad Taher, Prof., Department of Geography, Gauhati University, Guwahati.

History

1. Deshpande, Vasant. *Militant Hinduism in Maharashtra, 1925-1951 in the background of contemporary politics*. Jammu. Dr. A.C. Bose, Prof., Department of History, University of Jammu, Jammu.

2. Krishan Lal. *Political and administrative history of Punch from 1827 to 1948*. Jammu. Dr. S.D.S. Charak.

3. Mathur, Lalita. *Internal administration under earl of Moira Lord Hastings, 1813 A.D.—1823 A.D.* Devi Ahilya. Dr. C.K. Tewari, Govt. Arts and Commerce College, Indore.

4. Patil, Channabasappa Soodayya. *Medieval tamples of Raichur and Bellary Region: A study*. Karnatak. Dr. (Smt.) S.L. Shantakumari, Reader, Department of Ancient Indian History and Epigraphy, Karnatak University, Dharwad.

5. Rajeshirke, Ashok Bhausaheb. *Society and economy of the Portuguese Chaul in 16th and 17th centuries*. Baroda.

6. Rema Devi, K.S. *Social change among the Nambudiries of Kerala*. Kerala. Dr. K.K. Kusuman, Reader, Department of History, University of Kerala, Kariavattom.

7. Sekhar Reddy, G.C. *Endowment of lamps: A study*. Venkateswara. Dr. S.S. Ramachandra Murthy, Department of Indian Culture, Sri Venkateswara University College, Tirupati.

THESES OF THE MONTH

Universities/Institutes can ensure that the theses accepted by them for award of doctoral degrees are regularly reported in this column by endorsing us a copy of the result announcements sent to the research scholars/supervisors. Kindly place the Association of Indian Universities on your regular mailing list for all such communications.

ALIGARH MUSLIM UNIVERSITY

ALIGARH

ADMISSION NOTICE NO. XI

SESSION-1990-91

Applications are invited from eligible candidates for admission to M.Phil./Ph.D. degree courses (Batch-I) during the session 1990-91 in various Departments of Studies/Centres/Units of the University as detailed below:

1. **FACULTY OF ARTS:**
   (a) Department of English/ Philosophy/ Linguistics/ Persian/ Sanskrit/ Urdu/ Arabic/ Modern Indian Languages/ Fine Arts.
2. **FACULTY OF SOCIAL SCIENCES:**
   (a) Department of Economics/Education/History/ Political Science/Psychology/Sociology/Islamic Studies/Library Science.
   (b) Centre of West Asian Studies/Strategic Studies.
3. **FACULTY OF SCIENCE:**
   (a) Department of Chemistry/Computer Science/ Geography/Geology/Statistics/Mathematics/ Physics.
4. **FACULTY OF LIFE SCIENCES:**
   (a) Department of Biochemistry/Botany/Museology/Zoology.
   (b) Centre of Wildlife & Ornithology.
5. **FACULTY OF COMMERCE:**
   (a) Department of Commerce/Business Administration.
6. **FACULTY OF MEDICINE:**
   (a) Department of Anatomy/Biochemistry/Microbiology/Pharmacology.
7. **FACULTY OF ENGINEERING & TECHNOLOGY:**
   (a) Department of Civil Engg./Electrical Engg./ Electronics Engg./Mechanical Engg./Chemical Engg./Applied Physics/Applied Chemistry/ Applied Mathematics.
8. **FACULTY OF LAW:**
   (a) Department of Law.
9. **FACULTY OF THEOLOGY:**
   (a) Department of Sunni Theology/Shia Theology.
10. **INTERDISCIPLINARY BIOTECHNOLOGY UNIT**
11. **CENTRE OF AGRICULTURE**
12. **REMOTE SENSING APPLICATION CENTRE**

ELIGIBILITY REQUIREMENT:

Master's Degree (M.A., M.Sc., M.Com, M.Ed., M.Th., LL.M. etc.) from this University or an equivalent examination recognised by this University with not less than 50% marks or equivalent grade, in a subject relevant to the field of research, subject to any further requirements for eligibility laid down by the Boards of Studies/ Committee for Advanced Studies and Research concerned from time to time.

HOW TO APPLY:

The prescribed application form may be obtained from the Deputy Controller (Admissions), Post Box No. 52, Aligarh Muslim University, Aligarh-202002, on payment either in cash or through crossed Indian Postal Order worth Rs. 5/-, payble to the Finance Officer, A.M.U., Aligarh. If the form is required to be sent by ordinary post, a self-addressed envelope of 15 × 23 cms. in size, affixing stamps worth Rs. 5/- may be sent alongwith the requisition. In case the form is desired to be sent by Registered Post, stamps worth Rs. 11/- may be affixed on the self-addressed envelope.

Applications complete in all respects, supported by the relevant documents, alongwith a registration fee of Rs. 5/- (non-refundable) through crossed Indian Postal Order payable to the Finance Officer, A.M.U. Aligarh, should reach the concerned Chairman of the Department of Studies, Director of Centre/Institute, Coordinator of the Unit, Aligarh Muslim University, Aligarh-202002 on or before **16.8.1990.**

Incomplete applications or those received after the expiry of the last date shall not be accepted, and no further correspondence will be entertained in this respect.

Candidates selected for admission will be intimated of the date of completion of admission.

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CONTROLLER OF EXAMS. & ADMISSIONS

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HYDERABAD-500 007. (A.P.)

Advertisement No. 4/90 **Dated : 12.7.1990**

Applications in the prescribed form together with the registration fee of Rs. 10/- payable through IPO/Demand Draft only (M.O. is not acceptable) drawn in favour of the Registrar. O.U. are invited for the following posts in the University service so as to reach the undersigned in person or by post **on or before 6th August, 1990:**

S.No.	DEPARTMENT	PROFESSOR	READER	LECTURER	REMARKS
	GROUP-I				
1.	English	—	6	1+2 (ELTC)	
2.	Sanskrit	—	1	1+1*	
3.	Persian	—	1	1*	
4.	Telugu	1	1	2*	
5.	Urdu	—	—	1	
6.	Theatre Arts	—	—	1	
7.	Business Management	—	3	—	
	i) S.I. Karimnagar	1	1	1	
	ii) P.G.C.—KSM	—	—	1	
	iii) P.G.C.—GDK	—	—	2	
8.	Commerce	—	6	—	
	i) P.G.C.—Mahbubnagar	—	1	1	
	ii) P.G.C.—Nalgonda	—	1	1	
	iii) S.I. Karimnagar	1	1	1	
9.	Economics	—	3	—	
	i) S.I. Karimnagar	1	1	1	
10.	Political Science	—	3	2+3*	
	i) P.G.C.—Mahabubnagar	—	1	—	
	ii) Documentation Officer/Lecturer	—	—	2	
11.	Centre for Area Studies				
	i) Economics	—	1	1	
	ii) Political Science	—	1	—	
	iii) Geography	—	—	1+1 RA/L	
	iv) Sociology	—	—	1 RA/L	
12.	Law	—	—	3	
13.	Physical Education	—	—	3	
14.	Audio Visual Research Centre:				
	i) Co-ordinator/Reader	—	1	—	
	ii) Research Scientists-A/Lecturer	—	—	1	
	GROUP-II				
15.	Botany	1	1*	—	
16.	Physics (PGC—GDK)	1	1*	1*	
17.	Statistics	—	1	1+1*	
18.	Mathematics	1	1	2*	
	GROUP-III				
19.	Computer Science & Engineering	1	3	5	
	i) PGDCPA—GDK	—	—	1	
20.	Electrical Engineering	—	—	2	
21.	Electronics & Communication Enginerring	—	1	1	
22.	Mechanical Engineering	1	2	2*	
23.	Technology	—	—	2*	
	GENERAL—Non-Teaching				
1.	Librarian	1			
2.	Deputy Librarian	1			
3.	Assistant Librarian	2*			
4.	Library Assistants	3			
5.	Professional Assistants (CAS)	1			

P.G.C. — Post Graduate Centre
GDK — Godavarikhani
S.I. — Satavahana Institute of P.G. Studies
KSM — Kothagudem School of Mines
CAS — Centre for Area Studies
(*) — Consequential vacancies, if any.
RA/L — Research Associate/Lecturer
ELTC — English Language Teaching Centre
AVRC posts are tenable upto 31-3-1995 only.

RESERVATIONS:

15%, 6% and 25% reservations as per roster system are made for the candidates belonging to Scheduled Caste, Scheduled Tribe and Backward Classes respectively for the post of Readers and Lecturers only.

The number of posts reserved for various categories as per roster system are as under:-

	Category	Total posts	O.C	S.C.	S.T.	B.C.			
						A	B	C	D
Group-I	Readers	33	17	6	2	3	3	1	1
	Lecturers	29	16	4	3	2	2	1	1
Group-II	Readers	2	2	—	—	—	—	—	—
	Lecturers	1	—	—	—	—	1	—	—
Group-III	Readers	6	2	2	1	—	1	—	—
	Lecturers	11	6	2	—	1	1	—	1

PAY SCALES:

Professor & Librarian	: Rs. 4500-7300
Reader/Co-ordinator/Deputy Librarian	: Rs. 3700-5700
Lecturer/Res. Associate/Assistant Librarian	: Rs. 2200-4000
Library Assistant	: Rs. 1810-3230
Professional Assistant	: Rs. 1380-2750

AGE: – (as on last date of receipt of applications)

Professor & Librarian	: Not more than 50 years
Reader & Deputy Librarian	: Not more than 40 years
Lecturer & Assistant Librarian	: Not more than 35 years
Library Assistant & Professional Assistant	: Not more than 30 years

NOTE:

i) Age limit does not apply to the employees of this University.

ii) Relaxation in age to the extent of five years shall be granted to the candidates belonging to SCs, STs & BCs.

iii) Relaxation in age to the extent of five years shall also be granted to the teachers who have put in at least five years of service in any of the colleges affiliated to the Osmania University.

Full particulars and other details of qualifications etc., along with the prescribed application form can be had from the Director, Department of University Press & Publications, O.U., Hyderabad-7 on payment of Rs. 10/- in person or by sending an IPO/Demand Draft together with the postal charges made payable to the Director and by sending a self-addressed envelope of 14½ × 26½ Cms.

REGISTRAR

TATA INSTITUTE OF SOCIAL SCIENCES

DEONAR, BOMBAY-400088

No. ADMN/ADVT./90
Dated : July 11, 1990

Applications are invited for the following posts. The prescribed application form, along with the details of qualifications, experience, etc. prescribed for the post, should be obtained from the above address, either in person or by post, by sending an application for the same, along with a stamped (Rs. 4.00) self-addressed envelope superscribed "REQUEST FOR APPLIGATION FORM FOR TEACHING POSTS". For SC/ST candidates the prescribed application form and detailed information sheet will be supplied free of cost on receipt of their application for the same, along with a copy of the caste certificate.

I. **PROFESSOR** (One post) in the **Department of Research Methodology.** in the scale of pay of Rs. 4500-150-5700-200-7300+D.A. and other allowances having (a) post graduate degree in Social Work, Statistics, or Economics, (b) proficiency in social research methodology.

II. **READERS** (Five posts) in the scale of pay of Rs. 3700-125-4950-150-5700 + D.A. and other allowances:

(a) **1 post in the Department of Research Methodology** having M.A. degree in Political Science, Economics or Sociology/Anthropology and a Ph.D. Degree in one of these subjects; (b) **1 post in the Research Unit for Sociology of Education** having M.A. degree in Sociology, Economics, or Political Science and a Ph.D. degree in any social science and some research experience in the area of Education; (c) **1 post (temporary for 5 years) in the Department of Health Services Studies** having MHA degree or MBA degree with additional qualifications in health care management and a Ph.D. degree in the area of Health Services/Family Planning; (d) **1 post in the Research Unit for Social Policy and Social Welfare Administration** having M.A. degree in Political Science, Public Administration (with Development Administration), or Social Work and a Ph.D. degree in one of these subjects **OR** a Ph.D. degree or its equivalent in Management with specialisation in organisational behaviour; (e) **1 post in the Department of Social Welfare Administration** having M.A. degree in Social Work with either specialisation in Social Welfare Administration **OR** M.A. degree in Social Work in a generic programme with field work or work experience in teaching administration or as an administrator **OR** Master's degree in Rural Management and five years administrative experience in Social Welfare/Development Administration.

III. **LECTURERS** (Twelve Posts) as follows in the pay scale of Rs. 2200-75-2800-100-4000+D.A. and other allowances. The candidates should have an M.A. degree in the relevant subject with 55% of the marks or a grade point average of 3.5 under the seven point UGC grade system, a second class degree at the Bachelor's level and passed UGC eligibility test/JRF examination: (a) **1 post (reserved for ST candidates) in the Research Unit for Child and Youth Research** having M.A. degree in Public Health, Anthropology or Sociology and preferably with experience in research related to children and youth; (b) **2 posts in the Research Unit for Child and Youth Research** having M.A. degree in (i) Demography, (ii) Psychology. For post No. (i), those with sound experience in survey research methodology will be preferred. For the post No. (ii) experience of research in the area of child and youth research is required; (c) **1 post (reserved for SC candidates) in the Research Unit for Urban Studies** having M.A. degree in Human Geography or Social Work preferably with research experience in Urban Studies; (d) **1 post in the Research Unit for Urban Studies** having M.A. degree in Economics, preferably with research experience in urban studies; (e) **1 post (reserved for ST candidates) in the Department of Family and Child Welfare having M.A. degree** in Social Work with either specialisation in Family and Child Welfare or M.A. degree in Social Work in a generic programme with field work or work experience, preferably for two years, in this field; (f) **1 post in the Department of Personnel Management and Industrial Relations** having M.A. degree in Personnel Management and Industrial Relations; (g) **1 post in the Department of Medical and Psychiatric Social Work** having M.A. degree in Social Work with either specialisation in Medical and Psychiatric Social Work or M.A. degree in Social Work in a generic programme with field work or work experience, preferably for two years in the field of health; (h) **1 post, temporary for 5 years (reserved for SC candidates) in the Department of Health Services Studies,** having M.A. degree in Economics, preferably in Health Economics/Developmental Economics; (i) **1 post (temporary for 5 years) in the Department of Health Services Studies** having M.A. degree in Public Health; (j) **1 post in the Research Unit for Sociology of Education** having M.A. degree in Sociology. Those with courses/research in sociology of education preferred; (k) **1 post (reserved for SC candidates) in the Research Unit for Rural Studies** having M.A. degree in Sociology/Social Work with experience in Rural Development.

IV. **ASSISTANT REGISTRAR (PUBLICATIONS) (one post, reserved for SC candidates)** in the pay scale of Rs. 2200-75-2800-100-4000 + D.A. and other allowances, having M.A. degree with at least 55% of the marks or a grade point average of 3.5 under the seven point UGC grade system, preferably in English, or Social Sciences or Journalism. The candidates must know good English, be able to independently correspond, proof read and have some experience in marketing/sales. Upper age limit is 50 years (including 5 years relaxation for SC candidates).

V **SYSTEMS ANALYST-CUM-PROGRAMMER (two posts, one reserved for SC and one general)** in the pay scale of Rs. 2200-75-2800-100-4000 + D.A. and other allowances, having Master's level degree in Computer Science (55% marks or a grade point average of 3.5 under the seven point UGC grade system) with about 3 years' experience (2 years for SC candidates) in handling social research data analysis, or Master's level degree in Social Sciences/Mathematics/Statistics/Business Administration (with 55% marks, or a grade point average of 3.5 under the seven point UGC grade system) with a degree or at least one year diploma in computer science and about 3 years' experience (2 years for SC candidates) in handling social research data analysis. Upper age limit is 45 years for general candidates and 50 years for SC candidates. The persons selected will be required do shift duties between 7.00 a.m. and 10.00 p.m.

VI. **SUPERINTENDENT (SC/ST CELL) (one post, reserved for ST candidates)** in the pay scale of Rs. 2000-60-2300-EB-75-3200-100-3500 + D.A. and other allowances, having M.A. degree in Social Work and about 2 years (normal requirement 4 years) of experience in the field in counselling and administrative experience. Upper age limit is 45 years (including 5 years relaxation for ST candidates).

VII. **SUPERINTENDENT (SECURITY) (one post, reserved for ST candidates)** in the pay scale of Rs. 2200-60-2300-EB-75-3200-100-3500 + D.A. and other allowances, having a graduate degree with experience in Security Work or HSC for those in Police or Military service for at least 15 years (normal requirement 20 years) and in the rank of Officer. Upper age limit is 45 years (including 5 years relaxation for ST candidates).

Outstation candidates (both SC/ST and general) called for interview for posts I to V will be paid a contribution equal to 50% of the Ist class to and fro rail fare through the shortest route or full IInd class to and fro rail fare and for posts VI and VII full IInd class to and fro rail fare. The outstation SC/ST candidates called for interview, will be given free accommodation (lodging only) in the hostel for overnight's stay, **subject to availability** of rooms at that time. The SC/ST candidates will be given admissible relaxation in tests/interview performance and experience. The experience/field practice prescribed for Lecturers will be waived in the case of SC/ST candidates, if otherwise found suitable. The crucial date for determining age limit and length of experience shall be 31.08.1990.

The last date for request for application form is 31.07.1990, and the last date for the receipt of completed application form is **31.08.1990.**

T. V. Subramanian
ASSISTANT REGISTRAR (Personnel)

UTKAL UNIVERSITY

BHUBANESHWAR

Applications in prescribed form are invited for the following Research Posts for the Department of Special Assistance at the Department of Anthropology, Utkal University, Bhubaneswar.

(1) **Research Associate** – (No. of Vacancies)—one

Emoluments (a) Rs. 2200-100-2700
(b) Rs. 2700-100-3200
(c) Rs. 3200-100-3700
(d) Rs. 3700-125-4325

depending on the qualifications and experience.

(2) **Junior Research Fellow** – (No. of Vacancies)—Four (U.G.C. NET qualified)

Fellowship – Rs. 1800/- for the first and second years'
Rs. 2100/- for the subsequent years
(U.G.C. NET qualified)

OR

PROJECT ASSISTANTS : (No. of Vacancies-4)

Emoluments : Rs. 1200/- per month (Consolidated) (for U.G.C. NET **NOT** QUALIFIED)

QUALIFICATIONS

(1) For Research Associate:

(a) Master's Degree in Anthropology with specialisation in Social Anthropology/Development Anthropology.

(b) Ph.D. or D.Litt. in Social Anthropology/Development Anthropology/Regional Development.

(c) At least 5 years of Research Supervision at Master or M.Phil level or a research project in Regional Development/Development Anthropology.

(2) **For Junior Research Fellow/or Project Assistant**

(a) Master Degree in Anthropology with specialization in Social Anthropology/Development Anthropology with at least one year research experience in Development Anthropology/Regional Development Equivalent field of specialization.

OR

Those who have not qualified in the U.G.C. NET Examination may be appointed as Project Assistant for a period of one year with a consolidated salary of Rs. 1200 per month if found suitable.

NOTE

(i) Information sheet regarding conditions of service, Research Contingencies and other admissible allowances etc. will be provided alongwith the application form.

(ii) Application Fee Rs. 5/- in person and Rs. 10/- by crossed postal order drawn in favour of Co-ordinator, D.S.A. in Anthropology, Deptt. of Anthropology, Utkal University, Bhubaneswar-751 004.

(iii) Candidates in Service should apply through proper channel. But the advance copy must reach by the last date.

(iv) T.A. & D.A. for attending the interview are not admissible.

(v) Last date for receiving application by the undersigned is **31.8.90.**

S.N.D.T. Women's University

1, Nathibai Thackersey Road, Bombay-400 020

Advertisement No. 24.

Dated : July 9, 1990.

Applications are invited for the following posts to be filled in at the University and its conducted Institutions at Bombay and Poona, in the prescribed forms only, available on payment by M.O./Cash of Rs. 25/- for Teaching and Rs. 15/- for None-Teaching, on any working day, so as to **reach** the undersigned on or **before 11-8-1990.**

Sr. No.	Name of the Department/Institution and Post	Total Post	Medium of Teaching/ Instruction
A.	**Dept. of Post-Graduate Studies & Research, Bombay-400 020**		
1.	Reader & Head in Sanskrit	1	Gujarati/Marathi & English
2.	Reader in Music	1	Marathi + Hindi/English
*3.	Lecturer in Hindi (for SC only)	1	Hindi
4.	Lecturer in English	1	English
5.	Professor & Head in Marathi	1	Marathi
B.	**L.T. College of Nursing, Bombay-400 020**		
1.	Reader in Nursing	1	English
C.	**SNDT College of Education for Womenl, Poona**		
1.	Lecturer in Education	1	Marathi

Details of the post, required qualifications, scales and other general conditions available at the University Office Counter. *indicates post "reserved" for SC/ST/DNT/NT category and will be filled in by reserved candidates only.

P.K. Thakkar
REGISTRAR

NORTH EASTERN REGIONAL INSTITUTE OF SCIENCE & TECHNOLOGY

ITANAGAR (NIRJULI) : ARUNACHAL PRADESH

PIN-791 110, P.O.-NAHARLAGUN

ADVERTISEMENT NO. 3/90

Excellent career opportunities exist in various fields of engineering and science at NERIST a unique Institute of its kind in the country set-up by the Govt. of India through the North Eastern Council. It has an unconventional and innovative academic structure consisting of three successive two-year learning modules after class X of the Secondary School programme. Each module provides a terminality to an occupational level as well as an entry to next higher module ultimately leading to a degree in Engineering or Technology about six years after class X. It is envisaged to start post-graduate programmes leading to Masters and Ph.D. Degrees, in future.

Applications on prescribed form are invited from the Indian citizens for the following faculty and staff positions, upto **24.9.90.** Persons employed in Government, Semi-Govt. and Educational Institutions should apply through proper channel. The posts carry allowances such as DA, CCA, rent-free accommodation, special compensatory allowance etc. as are admissible to Central Government employees stationed at Itanagar from time to time. Depending on the qualifications and experience, a higher salary may be offered. Also a candidate not found suitable for the post he/she has applied may be considered for a lower post. Pay-scale and upper age limit immediately follow the name of each post.

1. **PROFESSORS** (i) Civil (ii) Electrical (iii) Electronics/Telecommunication, (iv) Computer Science/Engineering, (v) Production Engineering: Rs. 4500-150-5700-200-7300/- PM, Age-50 years.

EQ: Excellent academic record with Doctorate in the appropriate field from a recognised University/Institute, minimum 10 years of experience in teaching/research/Industry and specialised knowledge in one or more fields. Professional work of outstanding merit and experience of carrying out independent research and guiding research are desirable.

Candidates not possessing Ph.D. may also be considered if they have to their credit equivalent published research work or design and development work of high standard either in an Institution or in any Industry.

2. **ASSISTANT PROFESSORS/LECTURERS:** (i) Civil, (ii) Mechanical/Production, (iii) Electrical, (iv) Electronics/Telecommunications, (v) Computer Science/Engineering.

ASSISTANT PROFESSORS: Rs. 3700-125-4950-150-5700/- PM. Age-45 years; **EQ:** A consistently good academic record with a Doctorate in the relevant field. About 5 years experience in teaching and/or research and development. Candidate not possessing Ph.D. may also be considered if they have to their credit equivalent published work of high standard either in an Institution or in an Industry.

LECTURER: Rs. 2200-75-2800-100-4000/- PM. Age-40 years; **EQ:** A consistently good academic record with Doctorate degree in relevant field of Applied Science or in Economics or in Social Science or a Master Degree in appropriate field of Engineering/ Technology. About one year experience in teaching/research/industry. Candidates not possessing Ph.D. may be considered if they have to their credit equivalent published work of high standard.

PROJECT OFFICER: Rs. 3700-125-4950-30 150-5700/- PM. Age-50 years; **EQ:** At least second class Master's degree preferably in Economics/Statistics. Doctorate degree in relevant field is desirable. About 5 years experience in research/manpower planning/ educational administration at a supervisory level. Persons engaged in technical manpower survey work will be preferred.

The vacancy is in the Government sponsored Project on National Technical Manpower Information System, on continuing basis, at Nodal Centre, NERIST involving technical manpower survey in six north eastern states of Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. Selected persons can be taken on deputation basis also.

For the application forms write to Deputy Registrar (Administration) NERIST, Nirjuli, Itanagar–791 110, Arunachal Pradesh with a fee in crossed Indian Postal Order for Rs. 7.50/- payable to Director, NERIST, Naharlagun (Rs. 2.50/- for SC/ST candidates) together with a self-addressed Rs. 2.00 stamped envelope (size 23 cm × 10 cm). Candidates from abroad may apply on plain paper.

Age and experience is relaxable as per the prescribed norms in the case of SC/ST and other exceptional cases.

Applications completed in all respects along with attested/photocopies of the Certificates/Testimonials should reach to Deputy Registrar on the above address on or before **24.9.90** by registered post only. Incomplete application and application received late will not be considered.

P.G. Nair,
D.R. (Admn.)

SHREEMATI NATHIBAI DAMODAR THACKERSEY WOMEN'S UNIVERSITY,

BOMBAY-20

Applications are invited in the prescribed forms (8 copies) available from the SNDT Women's University Office, 1, Nathibai Thackersey Road, Bombay-400 020, on payment of Rs. 25/- (by M.O./in Cash) for the post of REGISTRAR, Shreemati Nathibai Damodar Thackersey Women's University, Bombay, so as to reach the undersigned not later than **August 11, 1990.**

Pay Scale: Rs. 4100-125-4850-150-5300 plus admissible allowances under the University Rules.

Total Initial Emoluments inclusive of allowances will be approximately Rs. 6040/- per month.

Qualifications & Experience:

(i) A Master's Degree, atleast in Second Class of a Statutory Indian University or a Degree recognised as equivalent thereto. Preferential additional qualifications from the following:

- (a) Ph.D.
- (b) Bachelor's Degree in Law.
- (c) Diploma/Degree in Management/ Education Management or Education Administration.

(ii) A person to be appointed to the post of Registrar should have:

- (a) Atleast ten years' administrative experience in a responsible executive position in an educational institution, preferably in a University or in a Government Department.

OR

- (b) Atleast five years' teaching experience in a College or a University Department and five years' administrative experience in a responsible executive position in an educational institution, preferably in a University or in a Government Department.

(iii) Proficiency in English and knowledge of Marathi and/or any other medium of instruction prevalent at the University, that is Gujarati or Hindi.

(iv) At the time of appointment the candidate for the post of Registrar should not be below 35 years and above 50 years of age. This age limit will not apply to candidate who is already in the service of the University.

NOTE:

1. Consideration will be given to the following qualifications indicated by the UGC
   (a) A Post-graduate degree with atleast 55% marks of its equivalent grade.
   (b) Atleast 15 years of experience as Lecturer/Reader of which 8 years should be in Reader's grade with experience in Educational Administration.

   OR

   Comparable experience in research establishments and other institutions of higher education.

   OR

   15 years of administrative experience of which 8 years as Deputy Registrar or an equivalent post.
2. Only suitable candidates will be called for interview.
3. Women/persons belonging to the Scheduled Castes/Scheduled Tribes will be given extra weightage.
4. Responsibilities, service conditions of the post will be as per statutes and norms as laid down from time to time.
5. Quarters will be provided in Campus, if needed.

P.K. Thakkar
REGISTRAR

OFFICE OF THE REGISTRAR:
DIBRUGARH UNIVERSITY,
DIBRUGARH.

ADVERTISEMENT NO. 6/90

Applications are invited for the following posts by **4th August, 1990.**

1.	**One Reader in Mathematics**	**— Abstract Algebra/ Topology/Differential Geometry.**
2.	**Two Readers in Commerce**	**— (1) Human Resources Management.** **(2) Open.**
3.	**One Reader in Statistics**	**— Industrial quality control/Operational Research.**
4.	**One Reader in English**	**— Linguistics and ELT/ American Literature.**
5.	**One Lecturer in Mathematics**	**— Relativity/Numerical Analysis/Computer Programming.**
6.	**One Lecturer in History**	**— Open.**

Scale of Pay:

For Reader:

Rs. 3700-125-4700-150-5300/- P.M.

Scale of Pay:

For Lecturer:

Rs. 2200-75-2800-100-4000/- P.M.

Plus all other allowances as admissible under the Dibrugarh University rules in force from time to time and the incumbent will be eligible for contributory P.F. and Gratuity on confirmations as per rules of the University.

Essential qualification:

For Reader:

(a) Good academic record with a doctoral degree or equivalent published work. Evidence of being actively engaged in (i) Research, (ii) Innovations in teaching materials.

(b) Atleast five years experience of teaching and/or research provided that at least three years where as Lecturer or in equivalent positions.

For Lecturer:

(a) A Doctorate degree or research work of an equally high standard.

and

(b) Consistently good academic record with 1st class or high second class (in the seven point scale) Master's degree in a relevent subject from an Indian Universities or an equivalent degree from a foreign University.

Having regard to the need for developing interdesciplinary programmes, the degree in (a) and (b) above may be in relevent subject. Provided that if the selection committee is of the view the research work of a candidate as evident either from his thesis or from his published work is of very high standard, it may relax any of the qualification prescribed in (b) above for the post of Lecturer.

Provided further that if a candidate having a Doctor's degree or equivalent research work is not considered suitable a person possessing consistent by a good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality may be appointed provided he has done a research laboratory organisation on the condition that he will have to obtain a Doctor's degree or give evidence or research work of equivalent high standard within eight years of his appointment as Lecturer failing which he will not be able to earn future increment until he fulfils these requirements.

Provided further that if a candidate has first class career (60% or above) all throughout from Matriculations upto the Master degree level, such a candidate can be duly considered by the Selection Committee for appointment as Lecturer by relaxing the qualifications for research experience degree.

9 (Nine) copies of applications in plain papers giving full bio-data including (1) Name in full (in block letters), (2) Father's Name, (3) Date of birth, (4) (a) Permanent address, (b) Present address, (5) Present occupation if any, (6) Present salary drawn if any and the salary expected, (7) Academic career in detail from Matriculation/Upwards showing div./class aggregate P.C. of marks School/College/University from which appeared (Attested copies of marksheets, certificate etc. should be enclosed), (8) Details of appointment held with designation, duration, nature of work and name of employers, (9) Research contributions with copies of reprints or research exp. supported by documentary evidence, (10) Name and address of 2 (Two) refrees not related to the candidate.

Fee in crossed I.P.O. for Rs. 10/- (Rupees Ten) only drawn in favour of the "Registrar, Dibrugarh University" should accompany the applications.

The number of this advertisement and the name of the post applied for must be referred to in the applications. Persons already in service should apply through proper channel or with "No objection certificates" from the present employer.

Applications not in conformity with the above requirement will not be entertained.

Candidates will be required to appear before and interview if and when called for.

REGISTRAR

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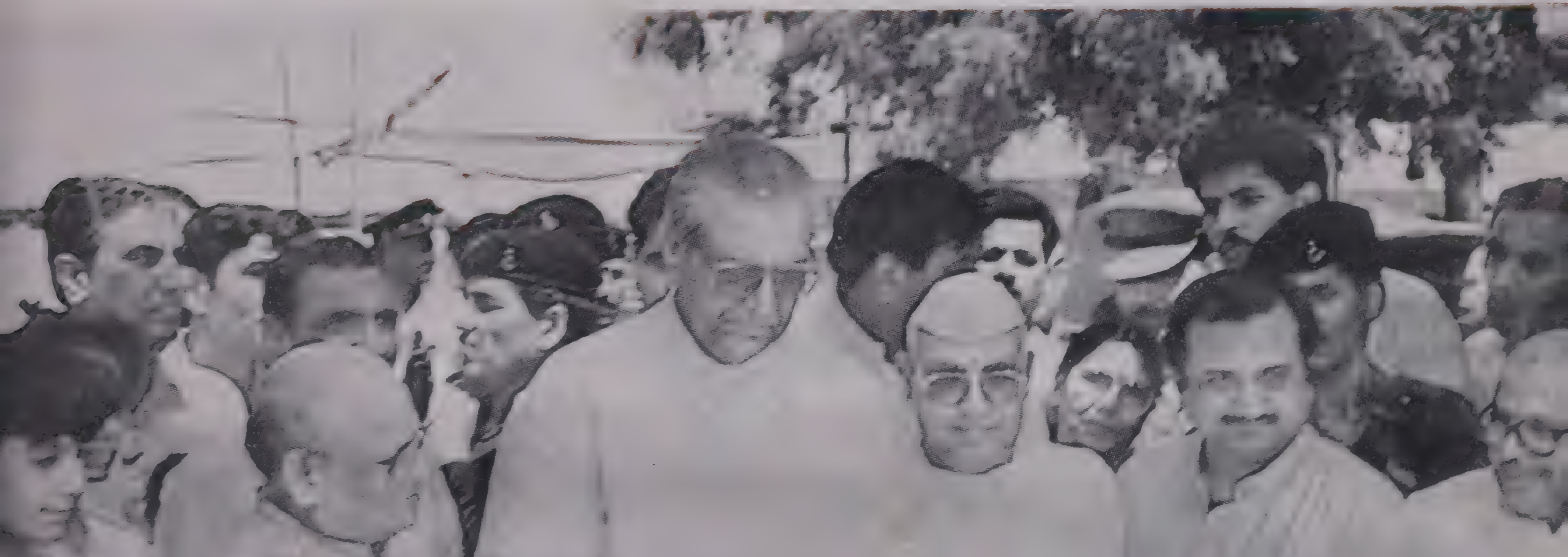
ISSN—0566-2257

University News

22 AUG
C.F.T.R.I. MYSORE

MONDAY, JULY 30, 1990

Rs. 2.50



Chaudhary Devi Lal, Deputy Prime Minister, inaugurating the Agricultural Exhibition organised on the occasion of the 14th & 15th Convocation of Gujarat Agricultural University. Others seen in the picture from L to R are: Shri Chimanbhai Patel, Chief Minister of Gujarat, Shri Mahipalsingh Shastri, Governor of Gujarat, Shri Bhupendrasinh Chudasma, Agriculture Minister and Dr. V.M. Jhala, Vice-Chancellor.

A.I.U. PUBLICATIONS

	Rs.
1. Universities Handbook—1989	600.00
2. Equivalence of Foreign Degrees	180.00
3. Handbook of Engineering Education-1988	50.00
4. Handbook of Medical Education	50.00
5. Handbook of Management Education	30.00
6. Handbook of Agricultural Education-1986	40.00
7. Handbook of Distance Education	In Press
8. Association of Indian Universities-1925-75	50.00
9. Association of Indian Universities-1925-85	100.00
10. New Technologies in Higher Education (HB)	120.00
(PB)	80.00
11. Studies in Distance Education	20.00
12. Universities and Research	45.00
13. University Finance—A Statistical Profile II	75.00
14. State Funding of Universities	50.00
15. Elite in the Making	40.00
16. Economics of College Education—A Study of Hindu College, Delhi	30.00
17. Educational Statistics at a Glance	75.00
18. Education and Economic Development	25.00
19. Report of the Task Force on Autonomous Colleges and Departments	60.00

BIBLIOGRAPHY OF DOCTORAL DISSERTATIONS

20. Social Sciences	50.00
21. Humanities	100.00
22. Physical Sciences–1857-1970	125.00
23. Biological Sciences	100.00
24. Social Sciences & Humanities-1970-75	150.00
25. Physical Sciences-1970-75	120.00
26. Biological Sciences-1970-75	120.00
27. Social Sciences & Humanities–1975-76	50.00
28. Natural & Applied Sciences-1975-76	90.00
29. Social Sciences & Humanities–1976-77	70.00
30. Natural & Applied Sciences-1976-77	120.00
31. Social Sciences & Humanities–1977-78	90.00
32. Natural & Applied Sciences-1977-78	100.00
33. Social Sciences & Humanities–1978-79	90.00
34. Natural & Applied Sciences-1978-79	125.00
35. Social Sciences & Humanities–1979-80	90.00
36. Natural & Applied Sciences-1979-80	130.00
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Editor :
SUTINDER SINGH

[illegible] 1990

Backbenchers

Arun Kumar Ghosh*

Could we pause for a moment to give a fleeting thought to habitual backbenchers. Who are they anyway? Inevitably it is the reluctant student who comes to class with an odd assortment of notebooks because he has to. How boring the time can be and how slowly the hours creep, the authentically can only be verified from an unhappy backbencher.

Why does he sit at the end of the class? Obviously because he has been sitting there right from the beginning. Teachers invariably like the cream of their class specially those who respond to their teaching and are eager to follow their directions. How refreshing it is to get a quick response from an alert student just where the teacher was looking for it.

Has anyone given a thought how it feels for the chronic backbencher to sit at the end and watch this day after day realising full well that he is not competent enough to participate in this repartee. Yet is this wholly true? He merely suffers from a complex that keeps him bogged down to prevent him from showing his best. Could he be encouraged even ever so slightly he would gladly contribute his share towards being considered a good student.

As things are gazing lostfully from a distance has turned him sulky terribly so if one may suggest as much. Can anybody imagine his first day in college when he was as excited as any front bencher who had to his credit sixty per cent and plus marks. Where did things go wrong that he lost all interest in his books and of late he is ready to throw it all up as it is useless anyway which will take him nowhere in the long run.

Dressed conspicuously in multi-coloured clothes, a backbencher keeps his lips moist in the presence of the weaker sex. A study of the latest film dialogues, capacity of moving motions against teachers and a sound knowledge of the opposite sex and their activities are the essential conditions he does have. He finds unlimited joviality in jeering freshers, and if a girl becomes the victim, his excitement knows no bounds. Appearance of the fair sex has an astriferous effect on him. Creating a threat to the peaceful running of classes is one of his specialities. He gives a wide berth to the lectures and consequently makes neither head nor tail of it. On being reprimanded by the teacher, for his lewd behaviour, he comes to a pretty pass; and one can expect but the simplest readymade answer, "I was not doing anything, Sir"

Encourage a backbencher to come forward, that is a simple rule. He could be coaxed by anybody who has a little influence on him, it could be even his best friend. If the teacher could throw a few questions at him occasionally things might start looking up. Questions on topics that one is aware he can tackle. This could soon restore his confidence and as his prestige grows before the class, you will soon find him looking topics hitherto neglected by him in order to give a better picture of himself.

But if at this stage he is forgotten to be relegated to a backbencher once again things could be worse than before. At all times it has been noticed that it is the backbenchers who causes the most trouble and are the master brains behind slogan-shouting and signature campaigns or even strike advocating abolition of examinations, extension of dates, raising of marks and all the rest of it.

Large unwieldly classes are none too easy to manage. The greater the number of students the lesser are the chances of the students and teachers coming together. Apart from this, unlike the stage of school going, students are expected to cultivate their own initiative and work according to

(Contd. on Page 16)

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SUCCESS DESPITE ODDS—DOWN SOUTH

A Critical Self-Appraisal of the Department of Architecture, Manipal Institute of Technology, Manipal

K.S. Anantha Krishna*

Manipal is a tiny educational settlement adjoining the famous temple town of Udupi in the South Kanara district of Karnataka. What strikes a visitor to Manipal is the enchanting natural scenery all around. The views of the lush green country side, the valleys and the western ghats soaring majestically to the skies on the west and the smell of fresh, unpolluted air cannot fail to fascinate anyone. However, amidst such an idyllic setting, the man-made environment of Manipal was hardly a source of inspiratioin, at any rate, until recently. As if to correct this mistake, the Dr. TMA Pai Foundation, which manages the Manipal Institute of Technology, as it does scores of other educational institutions, decided to establish a department of architecture in 1978. It was only the second school to be set up in Karnataka, four more following suit. Perhaps the start was an auspicious one with the stars in right positions. What else can one say about a department, which despite heavy odds, comes to be recognized as a noted centre for architectural education within a short span of ten years. The odds were indeed staggering. The distance from big cities, limited exposure to construction activities, cold shouldering from the usual quarters, the virtual absence of heavy weights in the teaching faculty—the list can be long, but the remarkable fact is not only that each of them has been successfully overcome but some have been turned into a positive advantage as well.

The Turbulent Beginnings

The beginnings, rather the first five years, were by no means smooth and easy sailing. When the first batch of students was admitted in 1978, the majority of the courses for the B.Arch. course were handled by the civil engineering faculty, who wondered why a separate department should be started in the first place when 'architecture could at best be an appendage of civil engineerng if not part of it'. The students, on their part, were not quite able to fathom the difference between architecture and civil engineering. After a few months, a couple of young architecture graduates, fresh from the college, joined the department, as faculty, and tried their hand in teaching, obviously for the first time. In 1980, a few post-graduates in Architecture and Urban Planning were inducted into the faculty. In the absence of a mature, accomplished person who could lead the department at this critical juncture, a reader, who had served earlier in bureaucratic set-ups, was asked to look after the day-to-day affairs of the department while the head of the Civil Engineering department continued to be the acting head. Unfortunately, this proved to be the bane of the department. The reader could neither establish a rapport with the students nor get along with his own colleagues. Unable to bear his school masterish ways, the students started protesting that they were being treated like kindergarten children rather than budding architects. The protest gradually became louder, with the result tension and anxiety gripped the department. The situation turned explosive when a majority of the students of a senior class were detained in internal assessment of architectural design. Subsequently, the reader's house was nearly ransacked and he had to seek police protection. The rest of the teachers, who had suffered silently all along, wrote to the then principal about the arrogant ways of the reader.

Positive Developments

Not that there were no positive developments all along. A workable syllabi had been put together by the Board of Studies. A group of young, but dedicated teachers was carrying on the teaching activity efficiently. The inspection team of the Council of Architecture which visited the department in 1982 had found the standard of work of the students satisfactory but had pointed out the lack of direction. Recognition was granted. The students made their mark in the national scene, when they won the Le-Corbusier trophy for the best overall performance at the NASA convention hosted by the Sir JJ College of Architecture, Bombay in 1982, to the astonishment of many well established colleges. As if to prove that this was no fluke, they bagged many awards in the 1983 Delhi convention as well. At least a part of this credit should go to the untiring efforts of some of the teachers

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**Professor and Head, Department of Architecture, Manipal Institute of Technology, Manipal-567119.*

who had given constant advice and guidance to the students. The department had made an impact at the national level. However, there was no all round growth. The infrastructure facilities were mediocre with nothing more to boast of than studios cum classrooms, staff cabins and a library collection of a few hundred volumes. Except for Mr. Rewatkar, who had started designing some buildings for the college management, others had done nothing worth mentioning as far as architectural practice was concerned. Research and publication was unknown to the faculty members especially to our redoubtable reader, who carried on merrily with his dictatorial ways.

Coming of Age

The dark clouds of strife and tension hovering over the department cleared and the sun started shining brightly when the reader left and Mr. Rewatkar was given the reins as the first Head of the department in 1984. He immediately set about the task of improving the staff-student relationship, from the depths so to say. While being strict, he made it clear that vindictive attitudes were a thing of the past. Thus, he had laid the very foundations for the student-teacher co-operation which was to blossom fully later on. In the meantime, however, the staff strength had reduced with the resignations of quite a few teachers who had left for greener pastures. When the strength dipped to an all time low of three, there were rumours that the department would be closed down. However, it is to the credit of Mr. Rewatkar that he refused to be daunted by the situation. By the constant efforts of the college, teachers with proven track records were recruited and the strength attained respectability. Even under such trying conditions, the students continued their winning streak in the NASA conventions of 1984 and 1985, which had now almost become a habit with them. The department had come of age.

Change in Leadership

In 1986, a professor was appointed for the first time and there was a change in the leadership. The policy of co-operation was continued with increasing success. The department began to act as a single unit and started gaining recognition from within the college, which had proved elusive until then. Infrastructure facilities were considerably expanded with the active participation of all the faculty members. A permanent exhibition hall was set up which displayed the cross section of works of students. In fact, the hall has proved to be the most interesting part of the department and today, there was additions of faculty works as well. The photography laboratory which had existed only as a namesake for quite sometime was strengthened with the procurement of a sophisticated camera, and equipment and chemicals which enabled the laboratory to photograph, develop and print. Slides are now routinely made and a large collection has been built up. A materials museum has been set up, which contains a large number of samples, even though the space available is limited. A reference library in the department is proving to be invaluable for both the students and the faculty members. Two computer terminals have been provided for the exclusive use of the department in its own premises. These are being used mainly as aids for teaching basic design. The central library, common to all departments, has an annual budget of two and a half lakh rupees for architecture books and journals. Audio visual equipment like TV, VCR, Slide Projector and Overhead Projector are being used routinely as teaching aids. Despite all this, there are many shortcomings on this front. Space is at a premium with the steady increase in both the student and staff strength. The studios have literally started bursting at their seams and the staff members' cabins are getting crowded. Expansion of the infrastructure facilities has been badly hit. The bright side is that the new civil engineering block under construction may provide the much needed additional space, though the problem cannot be overcome fully unless the architecture block, designed by the faculty, is executed.

Hosting the NASA Convention

The series of successes in the NASA conventions prompted the hosting of the 30th convention in January 1988. When the bid to host was accepted at the Madras convention the previous year, even the staff members were critical of the idea initially Manipal, being a small settlement, away from big cities, sponsors were not forthcoming. Most of the delegates would have to be transported 60 Kms. from Mangalore to Manipal and back. Despite these and many more handicaps the challenge was taken up in right earnest. Staff members and students worked hand in glove. The one year of preparatory activities saw the rapport between them rise to new heights. The management of the college provided the crucial financial and moral support. The 12th, 13th and 14th of January saw Manipal agog with a new exuberant mood, though one must admit that the local population had a 'cultural shock'. About 1300 students and 100 architects and teachers participated in the three-day convention, which was rated as one of the most efficiently organized ones. It was for the first time that a NASA convention was hosted in Karnataka state and probably the first ever to be hosted in a rural/semi-urban setting.

Consultancy and Research

A consultancy cell had been in existence in the department, though was dormant for quite some time. The cell was activated, when the management of the college decided to get the best use of the available expertise in the department. The senior most teachers were asked to design and supervise their projects in Manipal. This proved to be a challenge by itself. The management wanted cost-efficient structures which will satisfy the user group. There was a paucity of skilled drafting personnel. The contractors and supervisors were not used to the study of architectural drawings. On the spot instructions were expected from the architect for all aspects. Criticism of architects' works came in a torrent in a land where architectural awareness was coming at a snail's pace. It is to the credit of the architects of the department that they are not only successfully coping with the challenges but are striving for achieving excellence in the process. Some of the works of the faculty have been published in magazines. The entry of the cell for the limited design ideas competition for a composite Housing Scheme, conducted by the Pondicherry Housing Board was awarded the third prize.

Research activities of the department are yet to find their groove. As a first step, the final year students have been encouraged to take up research oriented thesis topics. Many such studies, guided by the teachers, have won the acclaim of the architects who have evaluated them. Efforts are being made to get sponsorship for some of the research proposals. However, it must be admitted that there is not enough manpower to undertake a large number of such projects, at present. Recently, technical publications by staff members has been on the increase.

Shortfall and Future Plans

Even though there is abundant good-will and understanding between the staff and students, the expectations of the students exceed the capacity of the staff members. The majority of the faculty members are very young and rather inexperienced in tackling the students. This gap is filled, at least partially, by inviting well known heavy weights from the fields of education and practice and arranging short term lectures. Prof. S.A. Deshpande, Prof. Anant Raje and a host of others have given such lectures in the department. The students' works are of a high standard, though, of late, a sense of complacency has struck them. The semester system is functioning smoothly but the contact hours are greatly reduced because of the examination routine which takes away plenty of time. Occasional arguments between students and teachers about internal assessment can be heard even now, though the integrity of the teachers is never questioned unlike in the turbulent early days. Though the full-time staff strength has risen to a respectable 15, it has become bottom-heavy with too many of them having precious little experience. A few practising architects from Mangalore supplement the teaching inputs. The workload on the full time staff members is much higher than normal, which hampers their activities in other areas.

Despite all these limitations, the department has become a resource centre for the architecture students of the remaining five colleges in Karnataka. The students from these colleges regularly visit the department for guidance and help in their thesis projects. Many faculty members of the department have become their external guides. Many of them have been invited to give expert lectures by these colleges. On two occasions, senior staff members were asked to take full responsibility for conducting examinations of the adjoining universities.

The training imparted is of a high standard and the products of the school have a very good demand both in India and abroad. Many reputed architects of the country write to the department regularly offering employment for outgoing graduates. Many former students have done very well in the United States. Recently, one of them won an international competition, teaming with four other architects. Some of the faculty members have gone on study leave to the United States for postgraduate training and letters have been received from some of the universities there requesting that the students from here by encouraged to join them.

Spade work has started for introducing a postgraduate course in urban planning. A long range plan envisages the introduction of postgraduate courses in various streams like landscape architecture, housing and urban design on the model of School of Planning and Architecture, New Delhi. However, this will remain a dream unless the college is able to attract the required faculty in these areas. The design for a separate architecture block, adjoining the new civil block, is approved and unless it is executed, the space crunch being experienced will not be relieved. But there is every reason to be optimistic, in view of the fact that the department has in the past successfully overcome tremendous odds. □

CO-CURRICULAR ACTIVITIES IN COLLEGES

L.C. Thanu*

Mahatma Gandhi conceived education as an all-round drawing out of the best in child and man-body, mind and spirit. He wanted to train, through education, the hand, heart and head (the three 'H's) and for him these were more important than the three R's (reading, writing and 'rithmetic). Regular curriculum in colleges caters only to the intellect. But development of the intellect alone will lead to a lop-sided growth of the personality of the individual and is not conducive to the progress of the society. University Education Radhakrishnan Commission avers, "If we concentrate only on giving education and neglect the development of the mind and spirit, we shall, like the Rakshashas of our mythology, have enormous power without any overiding ethical purpose". "Education to be complete must be humane; it must include not only the training of the intellect but also the refinement of the heart and the discipline of the spirit". True education, in the words of Gurudev Tagore, lies in the harmonious development of body, mind and soul together. Therefore, it is imperative that co-curricular activities should be made an integral part of the educational system.

Education must prepare one for community life or living. The students should live a corporate life in the institution to equip themselves for the wider world. Here they live together, participate in the joys and sorrows of others, contribute their share to make the life richer and learn from the neighbour lessons of social adjustment. They learn by being in a community and live as members of that community. They become one of the community with definite traditions, ideals aspirations, spirit, and *esprit de corps*. This corporate life can be fostered only by encouraging co-curricular activities.

Co-curricular activities refer to those activities which supplement and complement the regular classroom instruction. Their object is to provide opportunities of a less academic nature for the development of the whole person of the student. These activities should encourage orginality and initiative, afford an outlet for student's energy and enthusiasm and offer scope for the development of individual talents. They are workshops for leadership, for learning how to organise and how to instil a spirit of cooperation in others; they are well-springs of enthusiasm which permeate in the contacts of the students with the college. This aspect of co-curricular activities suggests that such activities generate high morale; for, interest in an activity leads to a liking for the college, which in turn ensures good scholastic progress.

Sound reason rightly demands that co-curricular activities be subordinated to regular academic work, i.e. they must not demand so much time and attention as to interfere with the study of the students.

Experience has shown that certain very valuable attitudes and desirable qualities can be cultivated more directly through properly conducted co-curricular activities than in the classroom. The advantages of co-curricular activities are:

1. Sublimiation of instinct: community living;
2. Social training: ideal of service, sacrifice;
3. Scope for free choice: talents discovered (writing, composing poems, arts etc.);
4. Civic training: self-Government;
5. Supplementing academic work: eg. election, excursion, magazines;
6. Development of recreational interests: eg. education for leisure;
7. Promoting loyalty to the institution, to the staff etc.
8. Infusing leadership qualities: initiative, originality, tolerance, clear-thinking and the like;
9. Inculcating self-discipline; and
10. Physical and moral development.

Co-curricular activities, to become successful and purposeful, depend on the techniques of motivating.

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students and the achievement of genuine student activity. Students should be motivated to participate in these activities not for self-improvement, but for something outside himself, as for example, upholding the tradition of the college, service to others, or meaningful entertainment for others. Such motivation is psychologically more effective and educationally more sound. There must be adequate room for real student initiative and responsibility. In short, Co-curricular activities must ensure orderly development of the total man by properly motivated self-activity.

The following principles must govern the planning of co-curricular activities.

1. They must be integrated with and complementary to the programme of studies. That is, curricular and co-curricular activities should not clash.

2. They must provide opportunity for students (a) for leadership experiences (b) to use their own initiative, (c) to assume responsibility, and (d) to have a sense of involvement in collegiate matters.

3. They must seek (a) to develop desirable traits and attitudes necessary for citizenship, (b) to make each member feel the responsibility for the welfare of the colege, and (c) to make every student and teacher feel himself a part of the total life of the college.

4. They must foster the develpment and perpetuation of desirable college traditions.

5. They must be organised in such a way as to (a) prevent the development of clannish tendencies and cliques, (b) provides each student the opportunity to be active in some phase of the programme, (c) receive encouragement cooperation and guidance from teachers, parents and the community, (d) provide activities to suit different tastes and talents, (e) inculcate the spirit of discussion, enquiry and evaluation among the students, and (f) less expensive as far as possible.

"It is necessary that the students' energies are channeled into meaningful and challenging pursuits", wrote the Education Commission. This involves the development of "a rich and varied programme of co-curricular activities, which would include lectures, debates, essay competitions, group discussions, cultural programmes and contests, study circles, social service camps, NCC, tours and excursions, sports and tournaments, publication of students' journals, educational film shows, conduct of student libraries, canteens and cooperative stores and welfare activities connected with financial and medical assistance to students."

Some examples of co-curricular activities in colleges are listed below:

(a) Physical: Games, sports, mass exercises, atheletics, intramural tournaments, NCC, hiking, horse riding mountaineering etc.

(b) Literary and academic: Library, reading rooms, college magazines, newspapers, debates, discussion groups, elocution competitions, students' Association like Economic Association, Planning Forum, Unions, Science clubs, Gandhi study circle and the like (c) Cultural: Drawing, painting, sculpture, dramatics and stage craft, music, fine arts.

(d) Social and Civic: Training in First Aid, Red Cross, St. John's Ambulance, co-operative bank, stores, textbook bank, Rotaract, Leo and JC clubs, charity drives, poor students fund drive, adult literacy, NSS and social service camps, Student counselling and welfare activities.

(e) Hobbies: (creative and collective) Woodwork, claymodelling, photography, gardening, bookbinding, philatelic clubs, collection of curios, coins, etc. pen friendship.

(f) Multipurpose: Scouting, excursions, radio club, cine forums, youth festivals.

(g) Community Activities: Mass Prayer, Service in the Campus, Hostel services by students themselves, improvement of environment, Social uplift work in the neighbourhood, adopting a village for continuous work, adopting a school, celebration of international and national festivals, national integration samiti.

Each activity should have atleast one qualified teacher to guide and advise the participating students. There should be coordination and overall supervision for unity in the total activity of the college. There should be a programme of advisement for parents and students regarding the optimum participation. Nature and extent of each student's participation in activities is to be recorded and maintained for evaluation and further improvement.

Co-curricular activities must be administered on democratic lines. Such democratic administration implies the principles of the sharing of responsibility, equality, freedom, cooperation, justice, recognition of individual worth and leadership.

Co-curricular activities imaginatively conceived and effectively executed with devotion, dedication and determination will help nurture physically fit, intellectually mature, mentally sound, morally upright and emotionally balanced youngmen and women who would ensure a calm campus, happily free from "youth quakes"

EDUCATIONAL TECHNOLOGY

Conceptualization, Classification and Clarification

R. Srinivasan*

Conceptualisation

In this technological era the evolution of terms like chemical technology, printing technology, leather technology, bio-technology etc., has affected the field of education to give wide currency to the concept of Educational Technology. This phrase though coined and used three decades ago, first by the Brynmor Jones Report in U.K., has undergone vast changes in its connotation over all these years and is still flexible accommodating each and every novel technique/ process that concerns positive learning.

Like any other concept, educational technology has also been defined variously and one of the earliest definitions put forward by the National Council for Educational Technology (NCET, 1967) of U.K. referred to it as "the development, application and evaluation of systems, techniques and aids to improve the process of human learning". Actually, this term is a cosmopolitan science drawing heavily from engineering technology, information technology, human engineering and so on and its implications are proposed to be analysed here.

The term at the outset can be taken to mean two things—introducing technological innovations in the field of education, or technologizing education to optimize learning endeavours. Education implies a life long social interacting process of acquiring experiences and adapting ourselves in the normal life. The term technology as defined by Tweney and Hughes (1966) means "the practice, description and terminology of any or all of the applied sciences which have commercial value". In essence this implies that technology connotes problem solving approach.

In course of time the scope of educational technology got enriched and now it is a systematic science of its own penetrating the whole educational scenario. That it has revolutionized the educational activity is evident from the fact that gone are the days when educational technology was offered as a subject of study in educational curricula. With the emergence of newer technologies/ methods it has now become a separate and distinctly established subject of study itself in the broader field of education; degree as well as research programmes in educational technology have already been started and departments of educational technology have come to stay in selected universities.

Classification

Educational technology as a concept can be classified into three well defined components each of which has a role to play in the process of education. The three components are:
(i) methods, (ii) materials, (iii) media.

As a method it implies making use of a few devices such as programmed learning, team teaching, micro-teaching, personalized system of instruction as methods in teaching-learning situations;

As materials, it comprises instructional materials comprising programmed textbooks, manuals, guides, texts and other written/print materials which expose to the learner the contents of these sources of materials; and

As media, it implies employing audio or visual or both audio-visual media such as radio, tape recorders, charts, maps, posters, films, educational television as teaching aids to supplement effective teaching and promote better learning.

Besides these three, we can also add manpower to this list to say that educational technology implies in essence four M's constituting a whole sequence of chain of inputs/facilities. This is because whatever be the method followed it requires manpower to operate/ utilize the varied resources in the learning environments.

The second way of classifying or looking at educational technology is the question of hardware and software mechanisms involved in its adoption. Garrison (1989) opines "technology wil be viewed here as having both a process (software) and a product (hardware) component, where process is the creative application of knowledge of purposeful activities... A subset of hardware is media, where media are the devices used to distribute information". Educational technology as an amalgam of hardware and software is a known fact in the sense that essentially hardware covers TV, computer, Overhead projector, Tape recorder and teaching machines. The other aspect of software goes to include audio/video cassettes, filmstrips, transparencies, microfilms, slides, slide tape sequences and so on, indicating in the case of non-availability of these software materials the hardware component alone can hardly satisfy educational requirements.

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Yet another dimension of educational technology is the involvement of both human and non-humnan technologies. The non-human technology comprises engineering devices referring to the use of sophisticated electronic gadgets (hardware) used in schools and colleges. Educational technology not only implies the adoption of these electronic equipment but in the absence of trained personnel their utility is a virtual impossibility. The advent of computer assisted instruction (CAI) and teaching machines is really a path-breaking contribution of electronic media but they are of no use if they are not properly exposed to individuals. At this juncture it is apt to state that though the latest 'machine teaching' concepts are a welcome feature which have relegated the teacher to a subordinate role yet it is to be earnestly believed that no revolution as such in educational technology or engineering technology in particular can altogether replace the teacher/facilitator from the educative process. It is appropriate that with the advent of this concept educationists have capitalized on the developments taking place in diverse fields thereby making use of them in education industry.

Clarification

It is distressing to find that a highly comprehensive concept like educational technology is misinterpreted by many scholars to mean either audio-visual aids or programmed learning materials only. Audio-visual media are only the supplementary teaching aids which are used by the teacher to make teaching-learning effective and as such are confined to process aspect of education alone. This is also evident from the foregoing account of classification of educational technology into three M's that media is only a component/part of educational technology and therefore regarding audio-visual aids as synonymous with educational technology is a mockery which misleads learners. Similarly programmed learning as an individualized learning technique has been defined by Bob Wilson (1987) as a "general term for a highly structured system of learning which is based upon a logical sequence of self-paced, learning steps with feedback between each step". The programmed text used may be either a manually prepared one or a machine operated device in which programmes are fed into the teaching machines from which the learner learns. In either case programmed learning as an auto-device again is only one aspect of educational technology. This also goes to imply the joint functioning of both hardware and software mechanisms especially in machine fed programmed learning materials.

In view of these facts and considerations about the concept of educational technology, it is to be understood in the broader perspective of education as a comprehensive technology associated with all aspects of educative process such as choice of methods/teaching strategies, selection of adequate/relevant learning materials, using appropriate aids and guiding in operation/handling of various equipment to ensure better performance on the part of the learner. Educational technology also goes to prove that teaching as such is viewed as a technology in terms of its demands on the part of teachers compelling them to use all available materials and media to make teaching purposeful and effective. AECT (1977) reports "educational technology is a broad concept encompassing teacher and learner, as well as the process and product of learning, instructional technology is a subset of this term just as instruction is a subset of education". So instructional technology and educational technology are also not equivalent; the former necessarily goes along with the latter as a component.

In essence the emerging concept of educational technology which is regarded as the core of the educative enterprise may operationally be defined as the effective application of various teaching strategies utilizing all available resources or equipping learners in self-administration of all the facilities thrown open for efficient learning. It is thus clear that the very concept of educational technology functions as a mission with the prime concern of reaching a larger section of the society by all possible means and assuring varied and rich dividends in their learning endeavours.

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Convocation

AGRICULTURE IN GUJARAT

Chaudhary Devi Lal, Deputy Prime Minister and the Union Agriculture Minister, delivered the Convocation Address at the 14th and 15th Annual Convocation of the Gujarat Agricultural University. Choudhary Devi Lal described the achievements registered in agricultural sector in India with particular reference to the Gujarat State. Excerpts

If we take a look at the present agricultural situation in our country, it is heartening in many respects and also wanting in other aspects. A few years back, we were stagnated with the production at 130 million tonnes of foodgrains which rose to 150 million tonnes three to four years back and has now crossed the 173 million mark. Inspite of the natural calamities like floods and droughts, there is a tremendous overall growth and positive performance in all the areas like the inputs of seed, fertilizer use, pest and disease control, etc. Though we have reached near self-sufficiency in agricultural commodities, the benefits have not reached the real needy.

Gujarat is a state of pride in many respects. This state now comes under the agroclimatic zone-13 having a varied climate and all the possible soil conditions. Out of 107 lakh hectares of land under cultivation 23.3 lakh hectares are irrigated and the rest is unirrigated. The North Gujarat, where the main campus of the Gujarat Agricultural University is situated, reaps bountiful agricultural crops in *rabi*-summer through tube-well irrigation. But now the state is facing higher water table and inland salinity problems due to increased cultivation of high water-consuming crops in the canal-irrigated areas.

I am happy to note that you are doing extremely well in oilseeds and cotton. You can still do better on foodgrains. Total production-wise there is a good scope for foodgrains. Bajra yield and adaptation rate are very good. You have almost all weather *bajra* spread over the eight agroclimatic subregions of the state. I learn that this university has released some bajra hybrids, which are tolerent to downy mildew. In cotton, groundnut, castor and mustard you have a place of pride. It is also relevant to record that the university is producing excellent quality seeds in an enviable quantity, for the benefit of Gujarat as well as other states. In the field of pulses, pigeonpea is the major crop grown all over the state. The area under pulses is steadily increasing and I hope Gujarat will come out with hybrids in pulses also.

Based on these achievements, the ICAR has rightly chosen your university for the improvement and production of hybrid seeds and hybrid research in cotton, bajra, pigeonpea and castor. I understand that the ICAR is likely to support niger and sunflower research in Gujarat. You are also doing well in sesamum, soyabean and sunflower. "Gujarat Tal" is in demand for export. The state has a great potential for spices and aromatic and medicinal plants—particularly this part of North Gujarat has a great potential. A typical farmer like me will be glad to know that three co-operative dairies of appreciable capacity namely—Sugar, Sabar and Banas are fully functioning here. They not only supply milk for local needs including for milk products, they supply milk to other metropolis also. The dairies that are organised on AMUL pattern deserve all appreciation not because of the success of Operation Flood, not even for the well-knit organisation, but for the fact that it has improved the quality of rural life and has indirectly held back a sizeable rural population in rural areas which otherwise would have migrated for menial jobs to the urban areas.

I may now shift my attention to the middle Gujarat—a brighter spot for irrigated agriculture where maximum land-use frequency is taking place with crops like tobacco, paddy, cotton, banana and citrus. Bajra and summer groundnut are also a good alternative together with vegetables.

Further, South is the land of cotton, sugarcane, paddy, pigeonpea and horticulture. In spite of heavy rainfall the Dang zone which is a remote tribal area faces water shortage since the maximum rainfall occurs in a protracted period of three months with no subsequent rainfall. This is a place of pride for natural forestry. It is learnt that the university has developed and released six hill millet varieties or species for cultivation. The hill milletes are known for their high nutritive value together with higher amino-acid contents.

Saurashtra, the groundnut bowl is a vast area of low fertile soil and erratic rainfall, due to which the production of groundnut is not stabilized. The other note-worthy crops are sesamum, castor, summer groundnut, rainfed cotton, bajra, gram, maize and jowar for fodder purposes, certain types of vegetables and spices and horticulture. If the agricultural production in Saurashtra is stabilized and made sustainable and viable, the agriculture in Gujarat as a whole will be sustainable with groundnut production as a permanent feature. In the north-western region is the Kutch, which is a very promising sandy zone for date palm cultivation on large scale. Rainfed cotton, arid zone agriculture and groundnut are on the culture. Castor and mustard are also coming up.

The land of Saurashtra has the famous breeds of good milch cow-Gir and Jaffrabadi buffaloes which are excellent milch, meat and work buffaloes. Many European, African and South American countries have imported these breeds and raised them as commercially viable livestock especially on a low fertile degraded soil system. In fact, Murrah, Surti, Jaffrabadi, Bhadravati, Nili, Ravi and Nagpuri buffaloes were in great demand in other countries. The West Indies "Bufalypso" is nothing but a mixture of Indian buffalo breed and locals. The monsoon in Gujarat helps plenty of feed-grasses to come up. If these are properly harvested and preserved, there will be no shortage of fodder to feed the livestock population.

You may be aware that the ICAR is supporting 48 schemes of different nature and is assisting in development of agricultural education in the state. In addition, the ICAR has also established a Regional Centre for Arid-Zone Research at Bhuj; National Groundnut Research Centre at Junagadh; Soil and Agroforestry Centre at Vasad; salinity reclamation programmes near Tarapur, a Research Centre at Bhavnagar and a regional horticulture centre at Vejalpur near Godhra. I am told that these institutions together with the research stations of the university are doing yeomen service to agriculture.

However, more vital areas for research priorities should be on soil, water use, moisture conservation, agroforestry, horticulture, forage and livestock production together with agricultural implements.

I am happy to learn that in Gujarat, a very good linkage between university, state government and farmers exists. The Training and Visits programme and the National Agricultural Extension Project (NAEP) as a whole are a success. This is evident from the production figures and adoptions of new package of practices by farmers. Your university is already holding primary training programmes and diploma courses for the benefit of farmers' sons and tribal farmers. But I feel this area should receive more attention in future. At Deesa you have an exclusive agricultural school for farmers' daughters. In all you have 25 extension education centres in Gujarat. However, adaptive research trials and on-farm demonstrations need more attention to polish your technological recommendations and create confidence in the farmers on the results of your recommendations.

The yields of wheat per hectare have increased from 1169 kgs per hectare in 1968-69 to 1873 kgs per hectare in 1984-85 and close to 2200 kgs by 1990. Nearly 70% of the area under cultivation comes under the classification of irrigated areas. Similarly rice production started increasing from 1032 kgs per hectare in 1967-68 to 1425 kgs per hectare in 1984-85. Further increase is being achieved now. Here, significantly, only 41% of the area covered falls under irrigation. Research work will have to be intensified for increasing oil yield in cotton seed. New oil bearing seeds will have also to be explored and their coverage will have to be intensified. The possibility of getting protein from cotton seeds is also to be explored. I am happy to know that the state has constituted a State Agricultural Commission which is probing into the pros and cons of agriculture system as a whole for the state.

Your Vice Chancellor and Agriculture Minister have put before me a proposal for sanction for the Eighth Plan covering many aspects of research, extension and education. The proposal covers 16 individual items. It is basically for farmers' training and it pleads for animal ambulatory clinics for each district. I can assure you that the proposal will receive our full consideration. While you process and implement Eighth Plan Proposals you have to give greater attention to (a) development of backward areas, (b) remote areas of tribal belt, (c) employment to the local poor, (d) development of Kutch in particular and dry farming in general, (e) micro-level planning for districts, (f) an integrated crop-livestock-dairy oriented programmes, (g) land based livestock occupation in degraded land taking a family as a social unit, (h) agroforestry programmes through multi purpose trees, (i) development of micro water sheds as per local needs, (j) cropping system approach rather than single crop promotion.

Rising Cost of Technical Education

Technical education may become costlier. This was hinted at by Minister of State for Human Resource Development Shri Chimanbhai Mehta, while addressing the second meeting of the executive committee of the All-India Council for Technical Education.

There is a need to bring fees at a more realistic level, Mr. Mehta said keeping in mind the capacity of an average student to pay the fees. He said the country needed a system of scholarship and freeships for poor meritorious students.

The committee had decided to introduce a system for providing loans to such students and if necessary set up an "educational bank", Mr. Mehta informed stating that students could repay loans after employment. Loans would be available on parents' guarantee lent without collateral.

Education was "not a commodity" to be bought like a cake of soap or a car. Since it was a fundamental requirement for a person's development, it was almost a basic right. However, merit alone should determine who would have access to technical education, not money power. "Merit must not be displaced by money power", he commented.

"Capitation fee is often paid to get admission which would not be available on the basis of merit," Mr. Mehta added.

"While prevening capitation system," the Minister said, "We shall ensure that genuine private initiative in technical education does not become non-viable. The cost of technical education is high. Even recurring expenditure per student is around Rs. 12,000 per annum at degree level and around Rs. 8,000 at diploma level.",

"Most institutions, unless subsidised in some way, cannot realistically be expected to meet these costs year after year from their own sources at present fee levels of Rs. 500 a year," Mr. Mehta said informing that the AICTE executive committee had decided "to refer the possibility of setting realistic high fee ceiling to the states to get their reactions, comments and suggestions before finalising its fee norms." He hoped that the states would accept the fee ceiling worked out by the executive committee.

National Defence Programme

A National Defence Programme has been suggested by a working group on youth to inculcate among students a sense of respect to principles, values, rights and obligations as enshrined in the Constitution. The objective of the national youth policy should also be to promote national unity and integrity, non-violence, secularism, democracy, socialism and self-reliance, the report added.

To realize these objectives, a one-year national defence programme has been suggested which should be made compulsory for each student as part of the course.

Under the programme, the youth will live in rural and backward areas in other States for three to six months.

The programme would give preference to weaker sections, landless workers, minorities and women. It would operate to create a fearless society with a sense of nation-building among all.

Voluntary organizations and public activists working in rural and slum areas would be consulted for operation of the programme and an autonomous body would be set up for training, evaluation and inspection of the national defence programme.

The youth should be encouraged to fight superstitions, injustice, corruption, dogmatism, casteism, dowry and drug addiction.

Emphasizing the need for economic, social and moral development of the youth, the working groups have called for developing a sense of character building, self-respect, honesty and patriotism. There is a need for formulation of an equal, universal and as far as possible free education system.

The Antar Bharati programme should be made more meaningful and effective to strengthen and propagate the spirit of nationalism and promote understanding and goodwill among various areas, religions, and social groups. The programme should not be restricted to universities but should be expanded to the disadvantaged sections particularly in rural areas.

A permanent institution to establish ties with youth of neighbouring countries has been recommended. Expansion of sports has also been suggested.

We Congratulate...

1. **Shri S.M.H. Burney who has been elected Chancellor of the Jamia Millia Islamia University, New Delhi.**
2. **Dr. S. Rame Gowda who has taken over as Vice-Chancellor of the Karnatak University, Dharwad.**
3. **Mrs. Kamalini Bhansali, former Vice-Chancellor of SNDT Women's University, who has been nominated by the Association of Commonwealth Universities (ACU) to receive the 1990 Symons Award in recognition of her pioneering work on the ACU's Women's Programme.**
4. **Prof. T.K. Oommen, Dean, School of Social Sciences of the Jawaharlal Nehru University, who has been elected President of the International Sociological Association (ISA).**

Structures for Nuclear Power Reactor Technology

The Ministry of Human Resource Development, taking into account the nuclear power expansion programme of the Department of Atomic Energy has approved the setting up of a Research Cell for Structures for Nuclear Power Reactor Technology in the Department of Civil Engineering of the IIT, Madras, as a plan project. The purpose of the Research Cell is to create research infrastructure and develop man-power in the area of Structural Mechanics and Structural Engineering related to Nuclear Power Plants.

The Research Cell proposes to develop the area of Nuclear Structural Mechanics as a unitary discipline. Prior to the formation of the cell two consultancy projects were undertaken; the first being Experimental Model Analysis of Airlock Barrel for the Madras Atomic Power Station, Kalpakkam and the second being Finite Element Analysis of Raft Foundations for 500 MWe reactor building for Nuclear Power Corporation, Bombay. A project on Stress Analysis of Branch Connections of Pipes of PHT system sponsored by the Board of Research in Nuclear Sciences (BRNS), Bombay is under progress. A five year collaborative project on Finite Element Analysis of Nuclear Reactor Structures with Nuclear Research Centre, Juelich, FRG under Indo-German Bilateral Cooperation is also under active progress. An elective course on "Structures for Nuclear Power Plants" is also offered at postgraduate level. Investigation on Diaphragm Walls of Nuclear Reactor Buildings was carried out as a collaborative work with the IGCAR, Kalpakkam. Later, an International Workshop on Structures for Nuclear Power Reactor Technology was conducted during February 1987. Plans are drawn for collaborative Research Projects connected with the Prototype Fast Breeder Reactor. A short term course on Structures for Nuclear Power Plants was held in June, 1990.

Symposium on Pilgrimage Traditions

An "International Symposium on Pilgrimage Traditions", planned to cover the overall perspectives of pilgrimage will be held at Vrindavan from October 14 to 16, 1990, under the auspices of the Vraja Academy, Vrindavan and The Society of the Pilgrimage Studies.

About 120 scholars from different countries and disciplines have consented to participate.

"A pilgrimage combines an interplay of space, time performances and functionaries to form a unique human belief system which calls into play various social, economic, philosophic, psychic, spiritual and faith dimensions", as one has so aptly put it.

For the first time in Asia, an international symposium has been planned to cover the overall perspectives of pilgrimage which is called 'peregrinology'. The symposium will provide a platform for informed dialogue amongst the scholars of various disciplines drawn from different traditions.

The first such multi-disciplinary conference entitled 'Pilgrimage-the Human Quest', was held at the University of Pittsburg, USA (May 14-17, 1981). The theme has been pursued at a number of subsequent special meetings, follow-up workshops, seminars and discussion groups, either as part of the bigger conferences or as independent events at several places in USA and on the continent of Europe.

The forthcoming International Symposium at Vrindavan is, therefore, an unique event in India and it may well be hoped that it will be a constructive step towards making 'pilgrimage studies' more incisive, comprehensive, rational and multidisciplinary.

The themes to be covered at the symposium are: (a) Peregrinology; (b) Conceptual structure-redefinition; (c) Cosmic perspective; (d) Historical outlook; (e) Study of pilgrims and travel genre; (f) Sacred places, time, rituals and functionaries; (g) Religion and pilgrimage; (h) Peregrinology and Future Studies.

It is also befitting that for a symposium of such dimensions, Dr. M.S. Swaminathan has accepted to be the Patron and Dr. (Mrs.) Kapila Vatsyayan to be the Director.

The registration fee is Rs. 250/- from Indian participants and US $ 80 from foreign participants. The interested participants are required to submit an abstract of the paper in 200 words (one page double-spaced, A4 bond paper) in duplicate, by the first week of August, 1990.

Boarding and lodging will be provided free of cost by the organisers.

Address for correspondence:
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Course on Computational Fluid Dynamics

ISRO-IIT (Madras) Space Technology Cell, proposes to organise a one week course on Computational Fluid Dynamics at IIT, Madras from September 17-22, 1990. The objective is to concentrate on the basic aspects of Computational Fluid Dynamics and to highlight its application in aerospace engineering. The major topics likely to be covered are Basic equations of fluid dynamics and their approximations; Mathematical nature of the flow equations; Discretization schemes like finite difference method, finite element method finite volume method and time dependent method; Consistancy, stability and convergence of numerical schemes, grid generation, Resolution of discretized equations, Parallel computing and Overview of computation of flow past components of airplane and space vehicles.

The course is intended for those involved in the development and/or application of numerical methods to fluid flow problems and for existing practitioners who wish to broaden their perspective. The level is suitable for teachers engaged in fluid mechanics, graduate engineers in industry and to managerial staff members and heads of industry groups who wish to know about the capabilities and limitations of these methods.

Atmospheric Study Project for IIT, Delhi

The National Science Foundation, USA has sanctioned a project entitled "Study of the Atmospheric Boundary Layer Turbulence Processes in the Tropics, Dispersion Parameters Experiments" with a committed funding of Rs. 19,70,000 for a period of 3 years to the IIT, Delhi. Prof. M.P. Singh of the Centre for Atmospheric Science is the Principal Investigator from the Indian side and Prof. Sethuraman of the Department of Marine, Earth and Atmospheric Science, North Carolina State University, Raleigh, is the Principal Investigator from the US side.

The objective of the proposed tracer release experiments from an elevated and ground level source is to formulate dispersion parameters relevant for tropical condition, for updating various air quality and emergency response models. These models would be useful in siting of industrial and residential complexes, impact assessment, emergency preparedness, planning and management, etc. It is envisaged that these experiments would help in understanding the dispersal mechanisms under various atmospheric stability conditions and also for low wind conditions which are of common occurrence in the country and lead to high pollution potential.

Pondicherry University Plans Refresher Courses

The Academic Staff College of Pondicherry University proposes to organise, during this year, a number of discipline oriented refresher courses for university teachers in Philosophy, Commerce and French. The objectives of these refresher courses are to:

- — promote modern developments in teaching methods,
- — create an awareness in the teachers about the recent developments in the discipline concerned,
- — encourage teachers and researchers in the discipline concerned to undertake projects which would reflect recent developments in the discipline,
- — promote creative and innovative thinking for teaching and research in the discipline and thereby to promote professional commitment,
- — develop in the teachers proper awareness as regards the new challenges of the teaching and learning of the discipline concerned,
- — promote extension activities in addition to teaching and research.

The above programmes are intended to update and improve the quality of higher education in Philosophy, Commerce and French. The Academic Staff College of Pondicherry Central University has already gained all-India recognition and trained over 400 university and college teachers from various parts of the country.

National Power Systems Conference

The Sixth National Power Systems Conference was recently inaugurated by Shri Arif Mohammed Khan, Union Minister for Energy and Civil Aviation at the Indira Gandhi Institute of Development Research (IGIDR), Bombay. The Conference was jointly organised by IGIDR, Bombay and the Department of Electrical Engineering, IIT, Bombay.

In his inaugural speech, Shri Arif M. Khan stressed the need for giving top priority to the Energy Sector in the Eighth Plan. Shri D.V. Kapur, Chairman, Board of Governors, IIT, Bombay underlined the importance of giving recognition to local talent and indigenous technology and cited the excellent examples of the headway made by NTPC and the progress in the first HVDC Project in Barasoor, U.P.

The two tutorials, one on 'Harmonics in Power Systems' was inaugurated by Prof. R.E. Bedford, Professor Emeritus, while the other on 'Demand Side Management' was held at the Indira Gandhi Institute of Development Research, Goregaon, Bombay.

The Maharashtra State Electricity Board announced to offer sponsored projects to educational institutions in the field of Harmonics and Demand Side Management.

Prof. Oommen to Head World Sociological Congress

Prof. T.K. Oommen of the Jawaharlal Nehru University (JNU) has been elected President of the International Sociological Association (ISA), a world body of sociologists set up in 1949 with sponsorship from the UNESCO. The Association has a membership of 5000 sociologists from 80 countries from all the continents. 60 national associations are affiliated to ISA.

Prof. Oommen, an eminent sociologist, is the Dean of the School of Social Sciences at JNU. Author of 10 books and several research papers, Prof. Oommen is the recipient of two prestigious awards—Prof. V.K.R.V. Prize in Sociology for the year 1981 and G.S. Ghurye Award in Sociology and Social Anthropology for the year 1985.

Prof. Oommen was also the Secretary General of the 11th World Congress of Sociology held in New Delhi in 1986.

M.Sc. (Agroforestry)

The Haryana Agricultural University (HAU) has started a new Post-graduate programme of M.Sc. (Agroforestry) from this academic session. The university imparts education in agriculture, veterinary science, animal sciences, basic science and home science and is the only agricultural university with a sports college attached to it offering not only under-graduate courses but postgraduate programme also. Besides introducing the new agroforestry postgraduate programme, the Vice-Chancellor, Dr. A.L. Chaudhry has taken several initiatives for further improving in the academic standards of university. These initiatives include better preparation of instruction material, use of audio-visual aids and an overall improvement in the motivation of teachers as well as taught and formation of postgraduate committees.

VKRV Rao Prize in Psychology

Prof. Janak Pandey, Head and Chairman, Department of Psychology, University of Allahabad, has been awarded VKRV Rao Prize in Psychology for the year 1989. The prize instituted by the Institute for Social and Economic Change, Bangalore, carries a cash award of Rs. 5,000.

Prof. Pandey is the author of numerous publications including Perspectives on Experimental Social Psychology in India and Social Reality.

Self-Styled Universities

The University Grants Commission have cautioned the general public against several self-styled Universities/Vishwavidyalayas/Vidyapiths which are giving advertisements in newspapers for the award of degrees/diplomas for various courses such as B.A., B.Com., B.Ed., M.A., M.Ed., M.B.A., LL.B., Ph.D., D.Litt., Library Science, etc. or equivalent thereto under the so-called Open University scheme. The universities are:

(1) Maithili University/Vishwavidyalaya, Darbhanga, (Bihar);
(2) Takshila Kendriya Vishwavidyalaya, Uttam Nagar, New Delhi;
(3) Mahila Gram Vidyapith/Vishwavidyalaya (Women's University) Prayag, Allahabad (U.P.);
(4) Varanaseya Sanskrit Vishwavidyalaya, Varanasi, (Uttar Pradesh);
(5) Commercial University Ltd., Darya Ganj, Delhi;
(6) Testator Research University, Bodinaya-Kanur (Tamil Nadu);
(7) Sree Narayana Open University, Quilon (Kerala);
(8) Gandhi Hindi Vidyapith, Prayag, Allahabad (Uttar Pradesh);
(9) National University of Electro Complex Homeopathy, Kanpur (Uttar Pradesh);
(10) Universitetu Newjerusalem, Kuthuparamba, Cannore (Kerala);
(11) World Social Work University, Perunguzhi (Kerala);
(12) Netaji Subhash Chandra Bose University (Open University) Achaltal, Aligarh (U.P.);
(13) Shrimati Mahadevi Verma Open University, Mughal Sarai (U.P.);
(14) D.D.B. Sanskrit University, Puthur, Trichi (Tamil Nadu);
(15) Amritsar University, Amritsar;
(16) Arya University, Srinagar;
(17) Bible University, Ambur (North Arcot);
(18) Eastern Orthodox University, Ambur (North Arcot);
(19) Globe University of Science, Kumbakonam;
(20) St. John's University, Kizhanattam;
(21) National University, Nagpur;
(22) Self-Culture University, Kizhanattam;
(23) United Nations University, Delhi;
(24) Vocational University, Amritsar & Delhi;
(25) Western University of Kapurthala;
(26) Uttar Pradsh Vishwavidyapith, Kosi Kalan (Mathura); and
(27) Maharana Pratap Shiksha Niketan Vishwavidyalaya, Pratapgarh (UP).

These self-styled Universities are neither Universities established by a Central or State Act nor deemed to be Universities under section-3 of the University Grants Commission Act, 1956 and as such they are not empowered to award degrees in term of the provisions contained under section 22 of the said Act.

These so-called institutions are not recognised by the University Grants Commission and any one dealing with them for pursuing academic studies for degrees will be doing so at his/her own risk and responsibility.

News from UGC

Countrywide Classroom Programme

Between 9th August to 16th August, 1990 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission
6.00 a.m. to 7.00 a.m.

9.8.90

"Electrical Circuits–1"

"Creations of Clay"

"Language 3 to 5"

10.8.90

"Following the Sun"

"India Forgotten: A Philosophical Amnesia"

"This Planet Earth–1: Air"

11.8.90

"An Eye Opener: Prevailing Over a Handicap"

"Drug Addiction and Its Treatment"

"Sailing in the Air – Gliding"

12.8.90

No Telecast

13.8.90

"Colour-1: Perception"

"Management 1: What is Management?"

"Agriculture and Bio-technology-1"

14.8.90

No Telecast

15.8.90

"Special Programme on COUNTRYWIDE CLASS-ROOM Anniversary"

16.8.90

"Electrical Circuits–II"

"Portrayal of a People"

"Paninian Linguistics–I"

2nd Transmission
12.00 noon to 1.00 p.m.

9.8.90

"Computer Memory-I"

"Borrowings in English: The French Connection"

10.8.90

"Astronomy Through the Ages-II"

"Directive Principles: Are They Valid Today?"

"Micro-organisms: Beneficial Activities"

11.8.90

"Chinese Puppet Art"

"An Introduction to Kathakali"

12.8.90

No Telecast

13.8.90

"CP Violation"

"Management 7: Organisation Structures"

"Weather Prediction"

14.8.90

No Telecast

15.8.90

"Special Programme on COUNTRYWIDE CLASS-ROOM Anniversary"

16.8.90

"Computer Memory-II: Sequential Access Storage"

"Impact of October Revolution on Indian Literature-I"

TV Serial in Hindi, Tamil

The University Grants Commission (UGC) has agreed to a proposal for reproducing the English TV series entitled 'Race to Save the Planet' (previously known as 'State of the World') in Hindi and Tamil in 26 parts for the benefit of the Indian viewers. This work will be done within the university structure with the help of the existing Educational Media Research Centres (EMRCs) and Audio-Visual Research Centres (AVRCs).

Co-produced by the UGC and a Boston (USA) - based non-profit corporation, WGBH Educational Foundation, the Race to Save the Planet prime time TV series explores the human dimensions of international environmental issues including future of the earth and delineates the range of policy options that governments and citizens now face. It provides needed insights to understand the roots and processes of modernisation and industrialisation and relationship between human society and the earth's natural resources and to evaluate policies for creating a sustainable environmental future. The series focuses on solution, constructive ideas and new approaches from all over the world.

The series is expected to be scheduled to go on the air in October, 1990 in the United States as also in Norway and other European countries. The UGC is exploring the possibility of telecasting the series in India through the National Network of the Doordarshan simultaneously. The Commission will also explore the possibility of utilizing and recycling the funds out of the sponsorship fees received from broadcast of the international version of the series for bringing out Hindi and Tamil versions with more Indian footage.

The Commission has a sole and exclusive right to duplicate, distribute and exhibit the series and to authorise others to do the same for fully cleared Standard Television purposes and for non-theatrical use throughout India, Nepal, Bhutan, Bangladesh, Sri Lanka, Pakistan, Maldives, Mauritius, Trinidad and Poland exclusive of the premises of the US embassies and American Armed Forces bases for a period of nine years commencing with the date of the first release of the series in the United States.

As a part of the project some supportive print materials are also being prepared including a book on environmental studies for undergraduate level, study guide for high school teachers of students of 13-17 years of age, and for the viewers themselves. These materials will be made available to the UGC for appropriate use in India and other countries.

News from Abroad

Firing Genes into Wheat

Wheat strains are expected to be improved by a novel method of genetic manipulation developed by biochemists and engineers at the University of Queensland, Australia. Their project involves gas-gun technology that fires micro-projectiles of 1/1000th of a millimetre diameter, coated with genes, into cultured wheat embryos.

University mechanical engineers have developed and test fired a prototype gun which gives fine control of the spatial distribution and velocity of the minute "bullets."

A member of the project team, Professor Ken Scott, of the University's Biochemistry Department, believes his group could take a leading position in the new technology of gene implantation. The first firings of the gene gun had successfully achieved short-term gene evidence indicating the new generic information had been received and assimilated into the wheat cells, he said.

The project had been developed because existing genetic engineering methods for transforming plants, such as agro-bacterium systems, and the direct insertion of DNA into plant protoplasts, did not work well on cereals.

"Our method bombards the genetic information in a way that produces minimal damage to the cells so that they may grow and re-divide as new plants with new genetic information," he explained. "We believe it has substantial advantages over techniques developed overseas."

Professor Scott said the University's Plant Biochemistry laboratory was involved in research to produce plants resistant to disease, and with other desirable traits. In the past, the development of improved cultivars had relied on classical plant breeding techniques. Today, genetic engineering had major advantages over such methods.

Cereals had proved to be the most recalcitrant of all plant species to engineer. However, his group recently had developed an embryogenic line of wheat which was amenable to genetic manipulation.

BACKBENCHERS

(Contd. from Page 1)

directions given to them. Only unfortunately they prefer it otherwise. To suggest an overhaul of the present system of education might be far-fetched. Nonetheless some changes are essential to bring in greater interest in the minds of the students as the number of those indifferent to their studies is escalating everyday.

A habitual backbencher when asked to give his reactions suggested that he would be only too happy to occupy one of the front seats. It was simply that he was aware he would not be welcomed. For a shy borderline students constant persuation is necessary to prevent him from lapsing into his old ways. Although there might be enough of goodwill amongst the students themselves, still it would be seeking too much to think that the average student can look after another who lacks confidence.

Not uncommonly a student looking for a comfortable back seat is genuinely one who is not interested in his studies. How exactly do they fill their time? Their cases are different. Instead of compelling them to find other outlets for their energy it would be wisest to allow them to do something that is more in conformity with their aptitudes. I know of a case where a backbencher made startlingly good sketches much to the admiration of his friends. Later when he dropped his examination he joined an art school after months of distasteful arguments with his people which proved to be wrong when everybody saw the amount of talent he had in fine arts.

There it was. Would it not have been a waste to neglect a backbencher for if he cannot be forced, maybe there are other things which he can do which deserve casual attention instead of permitting his latent distinguishing attributes to go waste. ☐

Book Review

A CANDID EVALUATION

Atma Ram*

Aggarwal, J.C. *National Policy on Education 1986: An Appraisal.* Delhi. Doaba House, 1986, revised enlarged edition, 1989. Rs. 60, p.183.

India's new policy on education 1986, not just the replica of education policy of 1968, has several new thrusts and priorities. Keeping three cardinal objectives—excellence, social relevance and employability—it envisaged many innovative programmes and projects. There had been a national debate on its various aspects all along, generating considerable heat and dust. However, one should know exactly and precisely what the new policy is, what it seeks to emphasise and achieve in the long run, and what its history of evolution has been. This is what J.C. Aggarwal largely seeks to do in his book under review—*National Policy on Education, 1986: An Appraisal.*

In the brief yet revealing 'Introduction', the author records the history and evolution of the policy, and then sketches the contents of three important documents—'Challenge of Education—A Policy Perspective, 'National Policy on Education (NPE)–1986', and 'Programme of Action (POA)'. Thereafter, importance of 'Challenge of Education' is recorded. The next chapter presents a critical analysis of the educational system followed by educational re-orientation. Several passages from the 'Challenge of Education' are reproduced and interactions and reactions on the issues involved are presented in the subsequent chapters. Aggarwal discusses these issues in the background of education in the UK, USA and USSR. The new policy is scrutinised in terms of its merits, limitations, and concrete steps are offered for its effective implementation.

The book has some outstanding features—due stress on texts, perceptive analysis, thorough scrutiny of the issues, and above all, clarity of thought and ideas. The approach is pragmatic; the treatment of various aspects of the policy is largely plausible. Aggarwal presents both sides of the picture, and is not content with saying goody-goody things about the policy. Whereas in chapter thirteen he evaluates the NEP 1986 and highlights its merits (pp.109-112), in the next chapter he boldly outlines fifteen missing links/ limitations. He enlarges his perspective, and makes scores of concrete revolutionary suggestions for the implementation of the policy programmes. In appendices, he overviews the policy and underlines its operational aspect.

The author has done meticulous research and provided a lot of source material, facts and figures on the main chapters and appendices. His specialisation in the area has stood him in good stead. He has to his credit over 100 books on education—about a dozen brought out only recently. He has given here much material for the discerning readers to reflect upon, to ascertain whether NPE is a harbinger of change or a farce, it is epoch-making or a non-starter, a revamping of education or an onslaught on the fabric of education. He makes us think, makes us ask such vital questions.

The new National Policy on Education, 1986 touches numerous themes and seeks to revamp the system of education at all levels. A very lofty idea, a commendable ideal, "a consummation devoutly to be wishes." However, what hinders the implementation of schemes and innovative reforms is often ignored. Resources for education have ever been meagre. True, very true. But even these funds have not been utilised fully and adequately. Also, we don't have proper publicity of and preparation for new schemes. At times those who don't fit in anywhere or can't understand new programmes in depth are made incharge of these. In any case, human resources matter most for prompt and right implementation of novel schemes. Aggarwal's book makes one inclined to do deep and loud thinking on such points.

In fact, *National Policy on Education: An Appraisal* is a candid evaluation of various aspects of India's new policy on education. A very useful and reliable document that (like Bacon's essays) makes the reader think, weigh and consider for himself tenets of new policy. Deep down, it stresses the need for an all-out debate on the issue, a wide consciousness of the subjects involved. It follows a simple yet effective pattern: the text or main points of the text and side by side all-embracing commentary based on pragmatic, practical approach. This enables him to make the analysis relevant and also gripping. All along, clarity is his forte. The new policy on education is a vast subject, and even several volumes on it cannot do justice to it. However, Aggarwal has rightly delimited the subject and offered tangible, down-to-earth solutions/ suggestions. On occasions the matter has been left open-ended. All this has contributed considerably towards the usefulness of the volume. The book has been brought out finely, printed attractively, and is free from printer's devils. The information contained will be of great help to readers, researchers and planners. It may be recommended to the general readers as also to the specialised workers without any reservations.

**Joint Director (Colleges), Department of Education, Himachal Pradesh, Shimla-1.*

BOOKS RECEIVED

Australian Study Opportunities—A Directory for Overseas Students. Sydney, Hobsons Press and the International Development Program of Australian Universities and Colleges, 1989. 256p. Price not stated.

This Fourth edition of *Australian Study Opportunities* takes into account the significant changes that have occurred within the Australian education system during 1989 and includes details on approved courses offered in 1990. Though there is a variety of overseas students programmes like, Sponsored Students Program and Private Overseas Students Program, this directory is primarily addressed to overseas students on a full fee basis. This last category has resulted from a decision of the Australian Government taken in 1986 that allowed government-funded institutions to market courses to overseas students on a full-fee basis. This was done to satisfy the ever-increasing overseas demand for Australian educational services. The directory includes many courses which will be available for the first time to full fee overseas students in 1990.

The directory is comprised of seven parts. Part I provides general introductory information about Australia and the preparations necessary before making application to study as a full fee paying student. It briefly describes the Australian Education System, the courses and awards, entrance requirements, levels of English and study methods and a profile of the life and the people of Australia. Parts II and V list information in respect of Tertiary Courses and Private College Courses respectively. Information is rendered stagewise under four heads namely, Undergraduate Courses, Postgraduate Courses, Technical and Further Education Courses and Secondary and Matriculation Courses. Under each of these headings, courses are listed under broad subjects subdivided into different specialisations. Information listed under each specialisation gives the name of university/institution, name of the course, duration of the course and the course fee for one year. Parts III and VII give tertiary addresses and private college addresses respectively. These are the contact addresses for different types of institutions like higher education institutions, technical and further education institutions and English language colleges. Institutions are listed under the six states and the two territories of Australia. Each entry gives the name of the institution, its complete postal address, telephone number with international access code and the contact person for further information. Part VII in addition also gives complete postal addresses of the Australian Diplomatic Missions in Asia and the Pacific Region as also their corresponding Diplomatic Missions in Australia. Parts IV and VI of this directory contain advertisements of such institutions as are seeking to encourage full fee paying overseas students to study with them in Australia. These advertisements highlight the course offerings and the facilities available at these institutions.

Australian Study Opportunities thus attempt to furnish all the information which any student intending to study in Australia or his parents might need in choosing an appropriate course, an appropriate institution, and how to go about securing admission there.

Communication

Freedom of Inquiry

Sir,

'You Cannot Teach Without Training' (Focus on Academic Staff Colleges, *University News,* July 2), an article by Prof. Shivendra K. Verma is worth reading. Prof. Verma begins rightly with the core point in the National Policy on Education (NPE) 1986 wherein the freedom of the teacher to innovate has been accepted. In fact freedom is the very basis of education at all levels right from the primary to the university. Wherever freedom has been jeopardized, education has suffered. And freedom does not here essentially mean freedom of teachers alone. It's freedom of the students too. The teacher and the taught both are largely guided in the process of teaching and learning by the inherent acceptance of freedom. J. Krishnamurthi, a great world teacher, has said the same thing in this regard.

The writer, fortunately, has also highlighted other fine points in the process of teaching-learning. The purpose of education as interaction is to 'help human beings draw out their built-in generative power, experience the joy of adventure and discovery, and fortify whatever creative impulse they may possess'. Again, the writer says aptly: 'Learners, both young and old, need both security and liberty. A teacher must have enough sense to know when to interfere gently...etc.'

But what the UGC paper defines as components viz A.B.C.D. as classified, do not seem practical. As broad outlines they are alright. But no teacher can teach, if he is too aware of the component points of his classroom Teaching (and learning, too) is a process in which the teacher has to involve himself. In the course of his teaching, he may realise what and where he does his activity. Gradually he will understand his surroundings and the things linked with teaching. But what is essential is freedom of inquiry, questioning which may unfold the rest of the things associated with teaching and learning. 'Recently it has reported that the British university and college teachers are leaving for American colleges and universities because they want to encounter the spirit of inquiry and questioning which they say is more in America than in Britain.

Yours truly
N.D. Umrigar

Lecturer, Dept. of English,
PRB Arts & PGR Commerce College,
Bardoli Dist., Surat-394 601.

Equivalence Requested

Sir,

As mentioned in the career Advancement Scheme under the revised UGC scales of pay made effective since 1.1.86, a college lecturer with an M.Phil. or a Ph.D degree will be given one and three advance increments respectively along with corresponding year(s) of seniority in service at the initial scale at the time of first entry into service. It is further clarified that, in order to encourage research in continuation of postgraduate studies the existing lecturers with M Phil. or Ph.D. degrees or those who subsequently acquire such degrees, as the case may be, *will be eligible for a similar benefit in service for the purpose of promotion only*, but will not be eligible for advance increments.

In this connection I want to draw the kind attention of the Chairman and the Secretary of the UGC to the plight of those English lecturers who have Postgraduate Diploma in the Teaching of English (PGDTE) awarded by the Central Institute of English and Foreign Languages, Hyderabad. This diploma was considered an alterative qualification to an M.Phil. degree for the appointment of a lecturer in English (vide UGC Letter No. F.1-193/74(CP)/1843 dated 19.2.1985). But in the revised UGC scales of pay the benefit a lecturer holding an M.Phil. degree gets has not been given to a lecturer holding a PGDTE. Here it may be mentioned that for a college teacher of English a PGDTE is far more useful than an M.Phil. degree.

I, therefore, request the UGC authorities to treat a PGDTE equivalent to an M.Phil. degree for the purpose of advance increments and promotion in service.

Sincerely
Prashanta Kumar Sahoo
Lecturer, Dept. of English,
Sarupathar College, P.O.
Sarupathar, Dist. Golaghat, Assam.

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited upto **31.8.90** for one post of **Senior Research Officer (Medical)** in the pay scale of Rs. 3000-100-3500-125-4500 in the Hqs. Office of the Council, New Delhi.

Qualification & Experience: Essential: (i) MBBS from a recognised University with at least 8 years research experience (5 years only for those with a doctorate degree) in a biomedical topic (Physiology, Pharmacology, Pathology, Microbiology, Medicine, Paediatries etc.) (ii) Experience in writing/editing scientific articles/Technical reports/Monographs. Periodicals etc., in the field of biomedicine, in a reputed scientific publishing organisation. (iii) High proficiency in English Language.

Desirable: (i) Flair for writing scientific articles in simple language for laymen. (ii) Working knowledge of printing technology and production aspects, including copy editing.

Age: Below 45 years.

Conditions: Candidates called for interview will be paid 2nd class return fare on production of documents. Non-practicing allowance is admissible to Medical Graduates only as per rules of the Council. Private practice is not allowed. Service under the Council is pensionable. The period of experience prescribed is relaxable at the discretion of the competent authority.

Application from employees working in Govt. Departments. Public Sector Organisations and Govt. funded research agencies should be forwarded through proper channel.

Application forms and other details can be obtained from the Office of the **Director-General, Indian Council of Medical Research, Ansari Nagar, New Delhi-110029 on or before 20.8.90.**

Forms duly completed should be sent to the Director General, Indian Council of Medical Research, Ansari Nagar, New Delhi-110029 alongwith a crossed Indian Postal Order for Rs. 8/- payable to DG, ICMR, New Delhi.

SC/ST candidates are exempted from this payment. Incomplete and late applications will not be entertained.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857–1970 and 1970–75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertion is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A list of Research Scholars registered for doctoral degrees in Indian Universities.

PHYSICAL SCIENCES

Mathematics

1. Lokare, Shivaji Anna. *Study of boundary flow through porous media.* Shivaji. Dr. B.B. Waghmode, Reader, Department of Mathematics, Shivaji University, Kolhapur.

Physics

1. Ahire, Daga Vedu. *Electrical, magnetic and colorimetric studies of amorphous semiconducting chalcogenide systems.* Shivaji. Prof. (Dr.) J.K. Zope, Department of Physics, Shivaji University, Kolhapur.

2. Deole, Sandeep. *Theory of position annihilation in metals and metal surfaces.* Vikram. Dr. S.B. Shrivastava, Reader, Department of Physics, Vikram University, Ujjain.

3. Dey, Manoshi. *Ultra-sound propagation in solid state plasmas.* Vikram. Dr. S.K. Ghosh, Reader, Department of Physics, Vikram University, Ujjain.

4. Dhumure, Sangappa Sidramppa. *Deposition of silver sulphide films and their use in electrochemical photovoltaic storage cells.* Shivaji. Dr. C.D. Lokhande, Department of Physics, Shivaji University, Kolhapur.

5. Jadhav, Ashok Shankar. *Development of electro deposited Cd (Se, Te) polymer junctions for (photo) electrochemical energy storage.* Shivaji. Dr. C.D. Lokhande, Department of Physics, Shivaji University, Kolhapur.

6. Jat, Kanwarlal. *Plasma and wave amplification in semiconductors.* Vikram. Dr. S.K. Ghosh, Reader, Department of Physics, Vikram University, Ujjain.

7. Johar, Kishore Kumar. *X-ray absorption and study of some rare earths.* Vikram. Dr. G.K. Upadhyaya, 72, Azad Nagar, Ujjain.

8. Mahajan, Vinod Chanabasappa. *Synthesis, characterisation and studies of cadmium mixed ferrites with tetravalent substitution.* Shivaji. Dr. S.A. Patil, Department of Physics, Shivaji University, Kolhapur.

9. Nayar, M. Latha. *A study of electric and spectroscopic properties of certain crystals.* Kerala. Dr. V. Unnikrishnan Nayar, Prof., Department of Physics, University of Kerala, Kariavattom.

10. Praseedom, Mini. *Investigation of the dynamics of the middle atmosphere.* Kerala. Dr. S.R. Prabhakaran Nayar, Reader, Department of Physics, University of Kerala, Kariavattom.

11. Sindhu, M.S. *Formation and adiabetic expansion of quasi stagnant plasmoid in the geomagnetic tail.* Kerala. Dr. G. Renuka, Reader, Department of Physics, University of Kerala, Kariavattom.

12. Thomas, Preethi Cicily. *Investigation of phase transitions in crystals.* Kerala. Dr. V. Unnikrishnan Nayar, Prof., Department of Physics, University of Kerala, Kariavattom.

13. Yamini, S. *A study of P region plasma drifts at the magnetic equator.* Kerala. Dr. P. Balarama Rao, Prof., Department of Physics, University of Kerala, Kariavattom and Dr. S.R. Prabhakaran Nayar, Reader, Department of Physics, University of Kerala, Kariavattom.

14. Rahangdale, Yuvraj. *Theoretical studies on the mechanoluminescence excitation in solids.* H.S. Gour. Prof. S Shivraman, Department of Physics, Dr. Harisingh Gour Vishwavidyalaya, Sagar and Prof. B.P. Chandra.

15. Sakorikar, Ajay. *A study of laboratory plasma parameters.* Vikram. Dr. R.K. Chajlani, Reader, Department of Physics, Vikram University, Ujjain.

16. Sharma, Ganesh Datt. *Absorption studies of molecular species in VUV region.* Panjab. Dr. C.G. Mahajan, Reader, Department of Physics, Panjab University, Chandigarh.

17. Sharma, Pradeep Kumar. *Some investigations in the emission and absorption X-ray spectra.* Vikram. Dr. B.D. Shrivastava, Prof., Department of Physics, Vikram University, Ujjain.

18. Shrivastava, Bhakta Darshan. *Some experimental and theoretical investigations in X-ray spectra.* Vikram. Dr. B.D. Shrivastava, Prof., Department of Physics, Vikram University, Ujjain.

19. Singh, Pradeep. *Studies in X-ray satellite spectra.* Vikram. Dr. B.D. Shrivastava, Prof., Department of Physics, Vikram University, Ujjain.

20. Swami, Vishnu Sharan. *Spectroscopic and molecular orbital investigations of some drugs.* HS Gour. Dr. R.A. Singh, Lecturer, Department of Physics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

21. Thakur, Keshav Singh. *Studies on planar optical waveguides.* HS Gour. Dr. R.A. Singh, Lecturer, Department of Physics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

22. Tomar, Shatrughan Singh. *A study of acousto-optic diffraction and its salient features.* HS Gour. Dr. M.S. Thomar, Lecturer, Department of Physics, Dr. Harisingh Gour Vishwavidyalaya, Sagar and Dr. R.S. Kasana, Prof., Department of Physics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

Chemistry

1. Pawar, Surekha Shekhar. *Ph metric studies of transition metal complexes with thioligands.* Shivaji. Dr. M.B. Chavan, Department of Chemistry, Shivaji University, Kolhapur.

2. Pendse, Milind Hari. *Studies on electrodeposited Dy-Ba-Cu-O High Tc superconductor films and their characteristics.* Shivaji. Dr. S.H. Pawar, Department of Physics, Shivaji University, Kolhapur.

3. Rajeev, R. *Thermal decomposition studies on double-sulphates.* Kerala. Dr. K.N. Ninan, Head, Analytical and Spectroscopy Division, V.S.S.C. Trivandrum and Dr. C.G. Ramachandran Nair, Prof., Department of Chemistry, University of Kerala, Trivandrum.

Geology

1. Jagmohan Singh. *Contribution to the biostratigraphy and paleo ecology of the cretaceous sequence of part of Jaisalmer Basin, Rajasthan, India.* Panjab. Prof. S.B. Bhatia, Department of Geology, Panjab University, Chandigarh and Dr. Jagdish Pandey, Deputy General Manager, ONGC, KDMIPE, 9, Kaulagarh Road, Dehradun.

2. Udayakumar, J. *Geology and geochemistry of the Bababudan schist belt around Kalaspura, Chikamaglur District, Karnataka State.* Kerala. Dr. Raju Philip, Prof., Department of Geology, University of Kerala, Kariavattom.

3. Vinodkumar, N. *Sedimentology of the placer sands off Kerala coast.* Kerala. Dr. K.P. Thrivikramji, Reader, Department of Geology, University of Kerala, Kariavattom.

Engineering & Technology

1. Mukhopadhyay, Pradip Kumar. *Resource recovery from tannery wastewater using fixed film fixed bed bio-reactor.* Devi Ahilya. Dr. T.A. Sihorwala, Prof., Department of Civil Engineering, Shri G.S. Institute of Technology and Science, Indore and Dr. S.N. Kaul.

2. Ranade, Deepak H. *Qualification of runoff and associated soil loss from vertisols.* Devi Ahilya. Dr. A.N. Patel, Prof., Department of Civil Engineering, G.S. Institute of Technology and Science, Indore and Dr. Ramkumar Gupta, Prof. and Chief Scientist, D.A.R.P. Project, college of Agriculture, Indore.

BIOLOGICAL SCIENCES

Environmental Science

1. Kulkarni, Anilkumar Ramachandrarao. *Quality of surface and groundwater in Panchganga river basin, Kolhapur District, Maharashtra.* Shivaji. Prof. (Dr.) K.B. Pawar, Vice-Chancellor, Shivaji University, Kolhapur.

Biology

1. Dube, Anita. *Role of riboflavin in the blue and UV light mediated anthocyanin synthesis.* Devi Ahilya. Dr. K.N. Guruprasad, Reader, School of Life Science, Devi Ahilya Vishwavidyalaya, Indore.

2. Phase, Nakul Hemant. *Microbial conversion of soyabean sterols to steroid drug intermediates.* Devi Ahilya. Dr. Shridhar Patil, Reader, School of Life Science, Devi Ahilya Vishwavidyalaya, Indore.

3. Saha, Dibyendu. *Developmental genetics of tumourous growth in Drosophila.* Devi Ahilya. Dr. Pradeep Sinha, Reader, School of Life Science, Devi Ahilya Vishwavidyalaya, Indore.

4. Shrivastava, Ajit Kumar. *Microbial cleavage of C-17 side chain of some steroid drug precursors.* Devi Ahilya. Dr. Shridhar Patil, Reader, School of Life Science, Devi Ahilya Vishwavidyalaya, Indore.

5. Shukla, Aniruddha. *Biotransformation of some steroids to industrially important 17-keto intermediates.* Devi Ahilya. Dr. Shridhar Patil, Reader, School of Life Science, Devi Ahilya Vishwavidyalaya, Indore.

6. Singh, Aparna. *Role of free radicals and superoxide dismutase in the modulation of sperm memberane conformation.* Devi Ahilya. Dr. Sudhakar Bharti, Head, Department of Life Science, Devi Ahilya Vishwavidyalaya, Indore.

7. Singh, Prem Prakash. *Environmental regulation of avian thyroid functions with special reference to peripheral monodeiodination of triiodothyronine.* Devi Ahilya. Dr. Anand Kar, Prof., Department of Life Science, Devi Ahilya Vishwavidyalaya, Indore.

8. Verma, Saguna. *Free radicals and superoxide dismutase in*

thyroid gland and adrenal steroid biosynthesis and some of the physical aspects of hormone action. Devi Ahilya. Dr. Sudhakar Bharti, Head, Department of Life Science, Devi Ahilya Vishwavidyalaya, Indore.

Biochemistry

1. John, Linda. *Mechanism of parasite survival-lymphocyte studies.* Kerala. Dr. R. Kalayesa Raj, Department of Biochemistry, University of Kerala, Kariavattom.

2. Mathew, Susan. *Biochemical investigations on stress proteins.* Kerala. Dr. P.R. Sudhakaran, Department of Biochemistry, University of Kerala, Kariavattom.

3. Sudha Lekshmy, R. *A search on gluten related proteins in Kerala food items: An effect on dermatitis herpetiformis.* Kerala. Dr. K.T. Augsti, Department of Biochemistry, University of Kerala, Kariavattom.

4. Unnikrishnan, L.S. *Biochemistry of filarial parasites with reference to mobility.* Kerala. Dr. R. Kalayesa Raj, Department of Biochemistry, University of Kerala, Kariavattom.

Microbiology

1. Syed Toora. *Studies on the ecology, physiology and virulence of Yersinia enterocolitica.* Panjab. Dr. Gurinder Singh, Department of Microbiology, Panjab University, Chandigarh and Dr. Rajeshwar Sharma, Department of Microbiology, Panjab University, Chandigarh.

Botany

1. Kamal Jit Singh. *Physiological and biochemical studies on the effect of salt, dark and water stresses on nodulation and regulation of nitrogen fixation in some important legume crops.* Panjab. Prof. K.K. Dhir, Department of Botany, Panjab University, Chandigarh.

2. Meena Kumari, R. *Studies on the melastomaceae.* Kerala. Dr. Philomina Kuriachan, Reader, Department of Botany, University of Kerala, Kariavattom.

3. Mishra, Sarya Shankar. *Induction of differential senescence and basipetal mobilization of photosynthates from cotyledons to roots in Raphanus sativus seedling.* Sambalpur.

4. Namdev, Jugal Kishore. *Studies on some medicinal plants of Sagar Division with special reference to their antimicrobial activities and pharmaceutical importance.* HS Gour. Prof. K.N. Vyas, Department of Botany, Dr. Harisingh Gour Vishwavidyalaya, Sagar and Dr. T.R. Sahu, Reader, Department of Botany, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

5. Patil, Neelam Anil. *Physiological studies on drought tolerance in legume crop Arachis hypogaea.* Shivaji. Dr. T.M. Patil, Department of Botany, Shivaji University, Kolhapur.

6. Rajesh Kumar. *Physiological and biochemical studies on the formation of adventitious roots in stem cuttings of Tectona grandis Linn. F. and Acacia catechu Willd.* Panjab. Prof. K.K. Dhir, Department of Botany, Panjab University, Chandigarh.

7. Sasikumar, S. *Induction of mutations in medicinal plants.* Kerala. Dr. Susan Abraham, Prof., Department of Botany, University of Kerala, Kariavattom.

8. Shrivastava, Anjana. *Clonal propagation of certain medicinal plants by tissue culture techniques.* HS Gour. Prof. K.M. Vyas, Department of Botany, Dr. Harisingh Gour Vishwavidyalaya, Sagar and Dr. A.S. Mishra, Reader, Department of Botany, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

9. Soman, T.A. Cytological studies on Loranthaceae. Kerala. Dr. K.V. Bhavanandan, Reader, Department of Botany, University of Kerala, Kariavattom.

Zoology

1. Aggarwal, Samidha. *A study of the internal reproductive organs of some Indian Geometridae and their significance in taxonomy, (Lepidoptera: Insecta.* Panjab. Prof. H.R. Pajni, Department of Zoology, Panjab University, Chandigarh.

2. Sat Dev. *Assessment of the cytogenetic damage in petrochemical workers and cancer patients before and after treatment.* Panjab. Dr. G.P. Sharma, Department of Zoology, Panjab University, Chandigarh and Dr. R.C. Sobti, Department of Zoology, Panjab University, Chandigarh.

3. Shrivastava, Vandana. *Effect of some organochlorine compounds with relation to selected tissues in albino rats.* Devi Ahilya. Dr. Ashok Kumar, Asstt. Prof., Department of Zoology, Holkar Science College, Indore.

Medicine

1. Bhattacharyya, Sadhana. *Molecular basis of specific interaction of mycobacterial cells with mononuclear phagocytes and selective drug delivery in chemotherapy of tuberculosis.* Panjab. Dr. S.K. Basu, Director, IMTECH, Sector 39-A, Chandigarh.

2. Kulshreshtha, Tanuja. *Biological effects and interaction of lead and alcohol.* Devi Ahilya. Dr. S.C Chaturvedi, Prof. and Head, College of Pharmacy, Shri G.S. Institute of Technology and Science, Indore.

3. Legori, Alphonse. *Re-orientation of medical curriculum for better integration and application.* Kerala. Dr. K. Madhavankutty, Principal (Retd.), Medical College, Trivandrum and Dr. N. Vedamani Manuel, CERID, Mitraniketan.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities.

PHYSICAL SCIENCES

Mathematics

1. Bhasker, C. *Fluid flow and heat transfer characteristics of two phase (Gas-particle) flows through rotating systems.* Osmania.

2. Bhavi, Shankarappa Gurappa. *Theoretical studies in lubrication.* Karnatak. Dr. N.B. Bujurke, Reader, Department of Mathematics, Karnatak University, Dharwad.

3. Guin, Sushama. *An investigation on Wallmantype extensions and associated nearnesses.* Burdwan. Dr. K.C. Chattopadhyay,

Reader, Department of Mathematics, University of Burdwan, Burdwan.

4. Gupta, Sunita. *Laguerre series and approximation of function.* Vikram. Dr. G.S. Pandey, Head, Department of Mathematics, Vikram University, Ujjain.

5. Neela Rani. *Double diffusive convection in fluids and plasmas.* HP.

6. Rout, Sarbeswar. *Flows and waves in continuum mechanics.* IIT, Delhi. Prof. Prem Kumar, Department of Mathematics, Indian Institute of Technology, Delhi and Prof. O.P. Bhutani, Department of Mathematics, Indian Institute of Technology, Delhi.

7. Seshaiah, C.V. *Axially symmetric inhomogeneous cosmological models in general relativity.* Bhavnagar. Dr. J.K. Rao, Prof. and Head, Department of Mathematics, Bhavnagar University, Bhavnagar.

Physics

1. Bhattacharya, Jayanta Kumar. *Some studies in X-ray spectra of multiply ionized atoms.* Visva-Bharati.

2. Chatterjee, Samarendranath. *Studies on locked-oscillator discriminators at microwaves.* Burdwan. Prof. Baidyanath Biswas, Department of Physics, University of Burdwan, Burdwan.

3. Das, Subhasis. *On some techniques of nonlinear optical laser devices.* Burdwan. Prof. Gopal Ch. Bhar, Department of Physics, University of Burdwan, Burdwan.

4. Datta, Rita. *Cellular response of V-79 chinese hamster cells exposed to ultraviolet lights, X-rays or gamma rays and chemicals.* Calcutta.

5. De, Subodh Kumar. *Electronic properties of some solids.* Calcutta.

6. Jawale, Jayshree G. *Luminescence study of di-hydroxy coumarin and its co-polymer.* Baroda.

7. Krishna Shankar, B. *Studies on some biophysical aspects of hovering flight.* Osmania.

8. Mandal, Tapas Kumar. *A study on the molecular parameters of some diatomic oxides and sulphides.* ISM. Prof. B.L. Jha, Department of Applied Science, Indian School of Mines, Dhanbad.

9. Razdan, Ashok Kumar. *Microhardness and micromorphological studies on some flux grown rare earth perovskite crystals using optical and scanning electron microscopic and EDAX techniques.* Jammu. Dr. P.N. Kotru, Reader, Department of Physics, University of Jammu, Jammu.

10. Saha, Amar Chandra. *Inelastic interactions of protons with emulsion nuclei at high energies.* Calcutta.

11. Sarkar, Suvra. *Studies on microwave phaselocked solid-state oscillators.* Burdwan. Prof. B.N. Biswas, Department of Physics, University of Burdwan, Burdwan.

12. Singh, Paul. *Solid state nuclear track detectors as nuclear track filters.* Kurukshetra.

13. Subba Rao, B. *Studies in thin films: Electrical and ferroelectric properties of polyacrylamide polymer films.* Venkateswara. Dr. V.V.R. Narasimha Rao, Department of Physics, Sri Venkateswara University College of Engineering, Tirupati.

14. Talukdar, Sipra. *Some studies in interactions of photons with bound electrons.* Burdwan. Prof. P.K. Sengupta, Department of Physics, University of Burdwan, Burdwan and Dr. Dipankar Sengupta, Department of Physics, Viswa-Bharati, Santiniketan.

15. Venkata Ramana, M. *Spectroscopic studies and transport properties of oxyfluoro borate glasses.* Osmania.

Chemistry

1. Anand Kumar, Kondapi. *Kinetic studies on some oxidation reactions of peroxo-di-and monosulphates in orthophosphoric acid medium.* Andhra.

2. Chakraborty, Debasis. *Indirect method in analysis by atomic absorption spectrophotometry.* Burdwan. Dr. A.K. Das, Reader, Department of Chemistry, University of Burdwan, Burdwan.

3. Das, Swati. *Study of kinetics and mechanism of aqueous and emulsion polymerization of vinyl acetate.* Burdwan. Prof. R.S. Konar, Department of Chemistry, Regional Engineering College, Durgapur and Prof. A.P. Sinha, Retd., Department of Chemical Engineering, Regional Engineering College, Durgapur.

4. Janardhan, R. *Adsorption of polymers and the stability of pigment dispersions.* Osmania.

5. Joshi, Heta Harshadray. *Synthesis and characterization of the multicomponent polymeric system involving nylon-6 and polyolifin.* Baroda.

6. Joshi, Shrikant Shamrao. *Studies on liquid mixtures. Dr. T.M. Amminabhavi, Reader, Department of Studies in Chemistry, Karnatak University, Dharwad.*

7. *Kamboj, Ramesh Chand. Proteolytic enzymes in brain tissue: Purification and characterization of thiol proteases cathepsin B and cathepsin L.* Kurukshetra.

8. Mohandas, V.P. *Studies on recoveries of potassium chemicals and chloride free potash fertilizers from indigenous resources.* Bhavnagar. Dr. J.M. Joshi, Scientist, Central Salt and Marine Chemicals Research Institute, Bhavnagar.

9. Palgunachari, M.N. *Synthesis of peptides of biological interest: Peptides related to oxytocin and enkephalin.* Bangalore. Dr. K.M. Sivanandaiah, Prof. and Head, Department of Chemistry, Central College, Bangalore.

10. Patel, P.K. *Studies on compounds of pharmaceutical importance.* Saurashtra. Dr. A.J. Baxi, Reader, Department of Chemistry, Saurashtra University, Rajkot.

11. Pooranchand, Dinah Eleanor. *Synthetic studies on oxoketene S, S-and S, N-acetals: Development of new methods for novel heterocycles.* NEHU. Prof. H. Junjappa, Department of Chemistry, North Eastern Hill University, Shillong.

12. Prasad, V.S.R. *New heterocycles derived from 2-amino 1,3,4-thiadiazoles, -pyrimidines, and -thiazole (5, 4-b) pyridines.* Osmania.

13. Ratnani, Raju. *Chemistry of sulphur ligand complexes of molybdenum and allied compounds.* Rajasthan. Dr. R.C. Mehrotra, Department of Chemistry, University of Rajasthan, Jaipur.

14. Satti, Naresh Kumar. *Chemical investigation of indigenous medicinal plants and synthetic studies involving N-heterocycles.* Jammu. Dr. P.L. Kachru, Prof., Department of Chemistry, University of Jammu, Jammu and Dr. O.P. Suri.

15. Shah, R.G. *Studies on some compounds of medicinal interest.* Saurashtra. Dr. A.R. Parikh, Prof., Department of Chemistry, Saurashtra University, Rajkot.

16. Shrestha, Kedar Man. *Chemical constituents of some medicinal plants of Nepal.* Calcutta.

17. Sinha, Sikha. *Synthesis and dehydrogenation of polycyclic compounds containing seven carbon ring systems.* Calcutta.

18. Sivamurthy, V. *Radio-chemical methods of analysis: Analysis by radio-chemical displacement.* Venkateswara. Dr. B. Rangamannar, Department of Chemistry, Sri Venkateswara University College, Tirupati.

19. Sivaswaroop, Pathaneni. *Oxidation of some transition metal ions and their aminopoly carboxylate complexes by peroxo anions: A kinetic study.* Andhra.

Geology

1. Alavi, Seyed Ahmad. *Morphotectonic analysis of South Gujarat landscape.* Baroda.

2. Al-Hashimy, Fakhri Hussain. *Geological and geomorphological studies on the west coast between Dahanu and Kora (Maharashtra) with special reference to the recent coastal hydrodynamics and beach rock formation.* Baroda.

3. Gohain, Bimala Nazir. *Sedimentological studies of the area around Mohendijua-Koilajan-Dilai, Karbi Anglong District, Assam with special emphasis on lime-stone.* Dibrugarh. Prof. P. Kataky, Department of Applied Geology, Dibrugarh University, Dibrugarh.

4. Mathur, Ram Raj. *Development of the VLF EM prospecting method for solving chosen geological problems in hard rock terrain.* Osmania.

5. Pradeep Kumar, V. *Petrological and geochemical studies of the selected lawa flows of Pavagadh hill-Gujarat State.* Vikram. Dr. A.C. Chaterji, Head, Department of Geology, Vikram University, Ujjain.

6. Prithviraj, M. *Sedimentological, mineralogical and geochemical studies on the surficial sediments of the innershelf zone between Kuzhipalli and Chawghat, off the South West Coast of India.* Mangalore. Dr. T.R. Sreedhara Murthy, Reader, Department of Marine Gology, Mangalore University, Mangalagangotri.

7. Rao, A.M.S. *Ore Geology, geochemistry and genesis of zinc-lead-copper mineralization at Rangpo in Sikkim Himalaya, India.* ISM. Prof. K.L. Rai, Department of Applied Geology, Indian School of Mines, Dhanbad.

8. Rukah, Yousef Habous Abu. *Applied quaternary geology between Mahi and Narmada rivers, Gujarat State with special reference to the terrain resource evaluation.* Baroda.

9. Sanjeeva Rao, P.C.H. *Mineralogy and geochemistry of khondalite suite of rocks from the Eastern ghats granulite terrain, Visakhapatnam, Andhra Pradesh, India.* Nagarjuna.

10. Sharma, Suresh Kumar. *Stratigraphy and palaeontology of lower palaeozoic sequence of Malari-Sumna section, Kumaun Himalaya.* Jammu. Dr. S.K. Shah, Prof., Department of Geology, University of Jammu, Jammu.

Engineering and Technology

1. Ahluwalia, Manjit Singh. *A mathemattical model for soil erosion simulation.* IIT, Delhi. Dr. P.N. Kapoor, Department of Civil Engineering, Indian Institute of Technology, Delhi and Prof. S.R. Singh, Department of Soil and Water Engineering, Punjab Agricultural University, Ludhiana and Prof. Subhash Chander, Department of Civil Engineering, Indian Institute of Technology, Delhi.

2. Antony, T.P. *Pilot plant studies on the utilisation of industrial wastes for industrial bitumen manufacture.* CUST. Dr. D. Joseph Francis, Prof. and Head, Department of Polymer Science and Rubber Technology, Cochin University of Science and Technology, Cochin.

3. Bansal, Surinder Kumar. *Some studies on aerodynamic performance of a radial compressor stage.* IIT, Delhi. Dr. K.K. Choudhry, Department of Applied Mechanics, Indian Institute of Technology, Delhi and Dr. P.B. Sharma, Department of Applied Mechanics, Indian Institute of Technology, Delhi.

4. Basharat Salim. *Aerodynamic investigations into the influence of stationary components on the centrifugal compressor performance.* IIT, Delhi. Prof. R.C. Malhotra, Department of Applied Mechanics, Indian Institute of Technology, Delhi and Dr. D.P. Agrawal, Department of Mechanical Engineering, Indian Institute of Technology, Delhi.

5. Gomasta, Sudhir Kumar. *Network analysis and simulation in water supply schemes.* IIT, Delhi. Dr. Rema Devi, Department of Civil Engineering, Indian Institute of Technology, Delhi.

6. Gupta, Sanjay. *Studies in the use of solar energy in preparation of cotton and silk fabrics.* IIT, Delhi. Prof., M.L. Gulrajani, Department of Textile Technology, Indian Institute of Technology, Delhi.

7. Gupta, Sarveshwar Prasad. *Effect of structure on properties of bismaleimide resins.* IIT, Delhi. Prof. (Mrs.) I.K. Varma, Centre for Materials Science and Technology, New Delhi and Prof. D.S. Varma, Department of Textile Technology, Indian Institute of Technology, Delhi.

8. Harish Chander. *Studies in gas-liquid reactions and development of reactor.* IIT, Delhi. Dr. K.K. Baveja, Department of Chemical Engineering, Indian Institute of Technology, Delhi and Dr. S.C. Dhingra, Department of Chemical Engineering, Indian Institute of Technology, Delhi and Dr. P.K. Ghosh, Scientist, National Physical Laboratory, New Delhi.

9. Mahapatro, Pratap Kumar. *Studies on polymer composites using particulate fillers.* IIT, Delhi. Dr. S.N. Maiti, Centre for Materials Science and Technology, Indian Institute of Technology, Delhi.

10. Mathew, George. *Study on accelerators in rubber vulcanization with special reference to the binary systems containing substituted dithiobiurets.* CUST. Dr. A.P. Kuriakose, Prof., Department of Polymer Science and Rubber Technology, Cochin University of Science and Technology, Cochin.

11. Mukesh Kumar. *Some studies on MIG welding of Al-Zn-Mg-Alloy*. IIT, Delhi. Prof. R.S. Parmar, Department of Mechanical Engineering, Indian Institute of Technology, Delhi.

12. Naraine, Krishna Sahai. *The behaviour of brick masonry under cyclic compressive loadings*. IIT, Delhi. Dr. S.N. Sinha, Department of Civil Engineering, Indian Institute of Technology, Delhi.

13. Padmanabhan, G. *Modelling of inventory systems under inflation, perishability and stock dependent consumption*. IIT, Delhi. Prof. Prem Vrat, Head, Centre for Management Studies, Indian Institute of Technology, Delhi.

14. Pushpinder Singh. *Studies on the flexible pouch processing of mango and kinnow based beverages*. PAU.

15. Ranjan, Rajeev. *Effect of petrographic composition on the size distribution and crushing strength of coal*, ISM. Dr. T. Sharma, Lecturer, Department of Fuel and Mineral Engineering, Indian School of Mines, Dhanbad and Dr. (Mrs.) Rekha Ghosh, Indian School of Mines, Dhanbad.

16. Saini, Daulat Ram. *Highly filled magnetic polymeric composites*. IIT, Delhi. Prof. P.D. Grover, Department of Chemical Engineering, Delhi and Dr. K.D.P. Nigam, Department of Chemical Engineering, Indian Institute of Technology, Delhi and Dr. V.M. Nadkarni, Asstt. Director, National Physical Laboratory, Pune.

17. Venkateswara Rao, Bommu. *Studies on dyes and pigments for dyeing and mass colouratin of PET and Nylon-6*. IIT, Delhi. Prof. (Mrs.) I.K. Varma, Centre for Materials Science and Technology, Indian Institute of Technology, Delhi and Dr. (Mrs.) Veena Choudhary, Centre for Materials Science and Technology, Indian Institute of Technology, Delhi.

18. Verma, Bipin Bihari. *Technological studies on production of rasogolla from buffalo milk*. Kurukshetra.

AMERICAN STUDIES RESEARCH CENTRE

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Applications are invited for the position of

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(Literature/Humanities)

The ASRC is the largest library and centre in Asia for research on all topics relating to the United States of America. It serves scholars from India and South Asia writing post-graduate theses and mature works of scholarship. The Academic Fellows, of which there are normally two, are intimately involved in the academic administration of the Centre. They guide scholars, choose books for the collection (which now numbers over 150,000 volumes), co-edit the Indian Journal of American Studies as well as symposia and commissioned works, participate in courses in Hyderabad and around India, and represent the Centre at seminars and conferences.

QUALIFICATIONS

Candidates for this position must be totally fluent in English and possess a Ph.D. either in some area of American Studies or in a discipline requiring competence in American scholarship. They must be thoroughly familiar with the United States and American work in their fields.

A minimum of eight (8) years teaching and research experience is essential for appointment as a Senior Fellow. Applicants with five (5) years teaching and research experience may be considered if a suitable senior candidate is not available. Candidates must be less than 60 years of age during the tenure of this position. Exceptions can be made, however, if merit warrants.

The contract will be for an initial period of three (3) years, which may be extended to five (5) or more years. Candidates will be classified according to their credentials. Pay Scales are:

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Allowances admissible in the scales follow those of Central Universities. Candidates called for interview will be paid first-class round-trip train fare and given local accommodation. Applications on plain paper giving full particulars, through proper channels, and listing up to three (3) referces, should be sent **before 15 September 1990.**

The Director
American Studies Research Centre
Hyderabad-500007.

CLASSIFIED ADVERTISEMENTS

ANDHRA PRADESH AGRICULTURAL UNIVERSITY

Admn. Office: Rajendra Nagar: Hyd-500030

Advertisement No. 2/RC/90, Dated: 16.7.1990

Limited Recruitment Confined to Scheduled Caste and Scheduled Tribe Candidates

Applications in the prescribed form together with a Registration fee of Rs. 10/- are invited from qualified candidates belonging to Scheduled Caste and Scheduled Tribe for the undermentioned posts in Andhra Pradesh Agricultural University, Rajendranagar, Hyderabad-500030 **to reach on or before August 20, 1990.**

Subject	Associate Professor cadre Rs. 3700-5700

FACULTY OF AGRICULTURE

1. Agronomy	4
2. Genetics	10
3. Soil Science & Agril. Chemistry	1
4. Entomology	3
5. Statistics & Mathematics	2
6. Horticulture	6
7. Agril. Economics	1
8. Agril. Extension	1
9. Agril. Engineering	3
10. Plant Pathology	1
Total	32
	(SC – 20; ST – 12)

FACULTIES OF VETERINARY SCIENCE

1. Animal Reproduction & Gynaecology.	1 (Temporary upto 14.5.91)
2. Research Officer	1 (Temporary likely to continue)
3. Immunologist	1 (Temporary upto 31.3.92
Total	3
	(SC – 2; ST – 1)

FACULTY OF HOME SCIENCE

1. Foods & Nutrition	1
2. Human Development & Family Studies.	1
Total:	2
	(SC – 1; ST – 1)

Note: In case sufficient candidates are not available in one discipline the same would be made up in other discipline to the extent of total number of vacancies available in other discipline.

Application forms together with full details regarding qualifications prescribed for the posts and other particulars can be had from the University on payment of Rs. 10/- in person or through a crossed Demand Draft drawn from any Branch of State Bank of India, State Bank of Hyderabad and Andhra Bank in favour of the Comptroller, Andhra Pradesh Agricultural University, Rajendranagar, Hyderabad-500030 payable at State Bank of Hyderabad, Rajendranagar branch. **NO POSTAL ORDER** will be entertained. A self-addressed and stamped envelope of Rs. 5/- size 35cm × 15cm. should be enclosed to the requisition letter. The cover containing the requisition for application form should be superscribed "Requisition for application" and addressed to the Registrar, Administrative Office, A.P. Agricultural University, Rajendranagar, Hyderabad-500030.

Prof. S.M. Siddiqui
REGISTRAR

HARYANA AGRICULTURAL UNIVERSITY

Corrigendum to advertisement No. 1/90 appearing in University News on July 9, 1990

Post of Public Relations Officer is withdrawn. Temporary post of Mess Supervisor (Scale 1400-2600) is notified with last date 16.8.90. Cost of application form Rs. 2/-.

REGISTRAR

QUALITY IMPROVEMENT PROGRAMME

(Sponsored by the Ministry of Human Resource Development, Department of Education)

ADMISSION NOTICE

Applications are invited in the prescribed format from faculty members of AICTE-recognised Engineering Colleges for Admission to Doctoral and Master's Degree Programmes for 1991-92 at various QIP Centres and other Institutions having QIP Facility.

Eligibility:

Teaching experience of 3 years (for Ph.D.)/1 year (for M.E./M.Tech,) as on 1.7.1991. Other eligibility criteria are given in detail in the Information Brochure.

Application forms and Information Brochure:

Application forms and Information Brochure can be obtained by sending a self-addressed stamped (for Rs.6.00) envelope of size 210 × 297 mm (A-4) from the Principal Co-ordinator, Quality Improvement Programme, Indian Institute of Technology, Madras 600 036, indicating the programme for which application form is required.

Last Dates:

Receipt of request for application form : 15-9-1990
Receipt of completed application : 15-11-1990.

Principal Co-ordinator
Quality Improvement Programme
Indian Institute of Technology, Madras 600 036.

INDIAN INSTITUTE OF TECHNOLOGY

MADRAS

The 27th Convocation

of the Institute is scheduled to be held on 11th August, 1990 at 10.30 A.M.

SHRI ARIF MOHAMMED KHAN,
HON'BLE MINISTER FOR ENERGY & CIVIL AVIATION,
GOVERNMENT OF INDIA
will be the **Chief Guest.**

All graduands are requested to get in touch with the Academic Section immediately

IMPORTANT INFORMATION

1. Issue of Convocation gowns at Godavari Hostel: from 6.00 a.m. to 10.00 p.m. on 10th Aug., 90.
2. Rehearsal : at 10.00 a.m on 10th Aug., 90. at Students Activities Centre.
3. All alumni are cordially invited to attend the 'Alumni Day Celebrations' at the Central Lecture Theatre on 10th Aug., 90 at 5.30 p.m.

MALAVIYA REGIONAL ENGINEERING COLLEGE

JAIPUR

Applications on the prescribed forms are invited for the following posts by **13.8.90.**

Posts in AICTE Scales:

1. **Professor in**
    - (a) Structural Engineering
    - (b) Mechanical Engineering
    - (c) Electrical Engineering
    - (d) Metallurgical Engineering
    - (e) Architecture.
2. **Readers in**
    - (a) Civil Engineering
    - (b) Structural Engineering
    - (c) Mechanical Engineering
    - (d) Electrical Engineering
    - (e) Electronics Engineering
3. **Lecturers in**
    - (a) Metallurgical Engineering
    - (b) Chemical Engineering
    - (c) Architecture.
4. **Librarian**

Posts in Other Scales:

5. **System Analyst**
6. **Assistant Registrar**

Full particulars about the pay scales, qualifications, number of posts and their nature, application forms etc. can be had on payment of Rs. 15/- through DD/IPO (Rs. 7.50 for SC/ST) in favour of the undersigned along with a self-addressed envelope of 24 × 10 Cms. stamped with Rs. 3/- or on cash payment at our office during working days between 10.00 A.M. to 2.00 P.M. Separate application is required for each post. Applicants who may have already applied in response to our advertisement No. 2/Estt/89 for some of the above posts need not apply again. However, it will be appreciated if they could intimate their additional qualifications and experience, if any, during the above period so that their bio-data can be updated.

REGISTRAR

CENTRAL BUILDING RESEARCH INSTITUTE

(Council of Scientific & Industrial Research)

ROORKEE (U.P.) PIN: 247 667

ADVERTISEMENT NO. 2/90

SPECIAL RECRUITMENT DRIVE FOR SCHEDULED CASTES/SCHEDULED TRIBES

Applications on plain paper in the format given hereunder are invited for the following posts:

1. **SCIENTIST 'B' (Chem.Engg.) : Group IV(1) – 1 Post**
Pay Scale – Rs. 2200-75-2800-EB-100-4000 (Reserved for ST only)

Qualifications : Ist class B.E./B.Tech. degree in Chemical Engineering from a recognised University/Institute.
Desirable : Brilliant academic record plus one year's experience in development o chemical processes/technology in an organisation of repute.
Job Requirement : The candidate will be required to work in the area of fire research as applied to building materials and components.

2. **SENIOR TECHNICAL ASSISTANT (Geology/Geophysics): Group III(2) – 1 Post**
Pay Scale – Rs. 1640-60-2600-EB-75-2900 (Reserved for ST only)

Qualifications : B.Sc. with Geology/Geophysics as one of the main subjects at graduation level with 3-5 years experience in surveying and mapping OR M.Sc. in Geology/Geophysics.
Desirable : Training/experience in the use of modern engineering gadgets and techniques for surveying would be of advantage.
Job Requirement : The candidate would be required to work on the R&D and sponsored projects involving site investigations and mapping work.

3. **TECHNICAL ASSISTANT (GRADE VIII): Group III(1) – 1 Post**
Pay Scale – Rs. 1400-40-1800-EB-50-2300 (Reserved for ST only)

Qualifications : B.Sc. with Physics, Chemistry and Mathematics.
Desirable : One year's experience of working on organic building materials.
Job Requirement : Selected candidate will be required to work on testing and evaluation of organic building materials, such as polymers and coatings in different R&D projects.

4. **TECHNICAL ASSISTANT (GRADE VIII): Group III(1) – 1 Post**
Pay Scale – Rs. 1400-40-1800-EB-50-2300 (Reserved for SC only)

Qualifications : B.Sc. with Chemistry as the main subject.
Desirable : One year's experience of working in a research laboratory or teaching.
Job Requirement : To assist in the testing & analysis of building materials such as gypsum, cement, lime & pozzolana.

5. **TECHNICAL ASSISTANT (GRADE VIII): Group III(1) – 1 Post**
Pay Scale – Rs. 1400-40-1800-EB-50-2300 (Reserved for SC only)

Qualifications : Ist class Diploma in Mechanical Engineering/Technology of three years duration from a recognised University/Institution.
Deisrable : 2-3 years experience in the field of Fire Retardant Technology.
Job Requirement : Selected candidate will be required to work on the process developed of Fire Retardant/Fire Protection Technologies of Buildings.

6. **TECHNICAL ASSISTANT (GRADE VIII): Group III(1) – 1 Post**
Pay Scale – Rs. 1400-40-1800-EB-50-2300 (Reserved for SC only)

Qualification : Ist class Diploma in Civil Engineering/Technology of three years duration from a recognised University/Institution.

Desirable : Two years experience in a construction organisation/design office in construction/design/detailing/estimating of buildings.

Job Requirement : Selected candidate will be required to assist the Scientists in developing innovative construction techniques/improving traditional construction practices/research studies on building economics and construction management.

7. **JUNIOR STENOGRAPHER – 1 Post (Reserved for SC only)**

Pay Scale – Rs. 1200-30-1560-EB-40-2040.

Qualifications : Matriculation or equivalent with a speed of 80/40 words per minute in English shorthand/typewriting respectively

Age Limit : Age not exceeding 33 years.

Place of Posting : Initially at Delhi but transferable to Roorkee or any of the Extension Centres of the Institute any where in India.

Selection Method : Selection will be made through a competitive exam./test in English shorthand/typewriting at the speed of 80/40 w.p.m. respectively.

GENERAL INSTRUCTIONS TO CANDIDATES:

1. Number of vacancies mentioned against each category is provisional and may very at the time of selection and reservation for SC/ST will be made accordingly.
2. All posts carry usual allowances as made applicable to CSIR employees under the Central Government rules.
3. Higher start of pay may be considered for deserving candidates.
4. Appointment to the post of Scientist 'B' will be made on contract for a period of 6 years (including the period of probation of 2 years) in the first instance except for CSIR employees who are already permanent in the lower post. Appointment to the rest of the posts will be made on temporary basis, in nature, but likely to continue indefinitely.
5. Services of selected candidates shall be transferable any where in India.
6. Since it may not be possible to call all the eligible candidates for test/interview, the applications shall be short-listed for which the decision rests with the Director, CBRI, Roorkee.
7. There is no age restriction for Scientific/Technical posts.
8. A LOWER STANDARD OF SUITABILITY CONSISTENT WITH THE EFFICIENCY OF ADMINISTRATION WILL BE APPLIED IN THE CASE OF SC/ST CANDIDATES.
9. Period of experience where essential may be suitably relaxed in the case of SC/ST candidates, if found necessary, at the discretion of competent authority, and only in accordance with Government orders/instructions.
10. Candidates called for interview will be paid single second class rail/bus fare to & fro from the actual place of journey or from the normal place of residence whichever is nearest to the place of interview on production of relevant proof of travel.

HOW TO APPLY:

1. Candidates should apply on plain paper in the Format of Application given below. Application format should preferably be neatly typed/written in double space only one side of thick foolscape size paper.
2. Candidates who wish to apply for more than one post should submit separate applications.
3. Persons working under Central/State Govt./Public Sector Undertakings/Autonomous Organisation/Govt. Funded Research Agencies, should apply—Through Proper Channel—sufficiently well in advance so that their applications reach in time. They may, however, send advance copies of applications alongwith enclosures.
4. Applications in the prescribed format completed in all respects duly supported by attested copies of all relevant certificates/marks-sheets/testimonials regarding—date of birth, qualifications, experience etc. alongwith caste certificate belonging to SC/ST community should reach to THE CONTROLLER OF ADMINISTRATION, CENTRAL BUILDING RESEARCH INSTITUTE, ROORKEE (U.P.) PIN : 247 667.
5. LAST DATE FOR RECEIPT OF APPLICATION IS : **20TH AUGUST, 1990.**
6. Incomplete applications in any respect or received after the last date will be rejected.
7. Canvassing in any form and/or bringing of any influence, political or otherwise, will be treated as a disqualification for the post.
8. INTERIM ENQUIRIES WILL NOT BE ENTERTAINED.

FORMAT OF APPLICATION

1. CBRI Advertisement No.:
2. Name of post applied for:
3. Full Name of Candidate:
   (In Block Letters)

Space for Photograph

4. Father's/Husband's Name: Occupation:
5. Address in Block Letters with PIN Code:
   (a) Postal:
   (b) Permanent:
6. Nationality: Religion:
7. Marital Status: Married/Unmarried Sex: Male/Female
8. Date of Birth:
9. Place of Birth: Village/Town: District: State:
10. Whether belongs to—
    (a) Scheduled Caste: Yes/No—If Yes, Name of Caste:
    (b) Scheduled Tribe: Yes/No—If Yes, Name of Tribe:
11. Details of Close Blood Relative working in CBRI, if any:
12. Details of recognised Qualifications/Training etc. (High School onwards):

Exam. Passed Trg. obtained	Divn./Grade	Marks %age	Year of Passing	Duration of course	Subjects	Board/ University

13. Details of Employment/Experience (in Chronological order):

Name and Address of Employer/ Organisation	Post held with scale of pay/ Stipend etc.	Adhoc/Regular/ Temporary/ Permanent	Period of Service From To	Nature of duties in brief.

14. Only for applicant for post of Stenographer:
    (a) Speed in English Shorthand : wpm — Typing : wpm
    (b) Speed in Hindi Shorthand : wpm — Typing : wpm
15. Minimum Basic Pay acceptable:
16. Name and address of three persons (Not Relatives) to whom a reference can be made regarding your professional competence:
17. Any other relevant additional information:
18. List of Enclosures:
19. DECLARATION: I hereby declare that I am an Indian National and all information furnished above is true and correct to the best of my knowledge and belief. I also understand that if at any stage it is discovered that any attempt has been made by me to wilfully conceal or misrepresent the fact, my candidature may be summarily rejected.

Dated:

Signature of Candidate

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University News

MONDAY, AUGUST 13, 1990

Rs. 2.50

IIT Delhi Convocation

From L to R: Prof. B.D. Nagchaudhari, who was awarded DSc (*Honoris Causa*), Dr. Nanubhai Amin, Chairman, Centre for Environment Education, Department of Environment, Forests and Wildlife, Government of India, who delivered the Convocation Address, Dr. H.N. Sethna, Chairman, Board of Governors, IIT, Delhi and Prof. N.C. Nigam, Director of the Institute.

CLASSIFIED ADVERTISEMENTS

INDIAN INSTITUTE OF PUBLIC ADMINISTRATION

INDRAPRASTHA ESTATE, RING ROAD
NEW DELHI-110002

The Indian Institute of Public Administration is a National Institute promoting the study of public administration and is engaged in undertaking research in the matters relating to public administration and the machinery of Government, organising conferences and seminars and conducting mid-career training programmes for higher civil services in the Central, State and local Governments and also in Public Sector Undertakings. The Institute also provides consultancy services to government and extends publication, library and information services. Applications in the prescribed forms obtainable free of charge from the Registrar on request accompanied by self-addressed envelope (25 cm × 10 cm) are invited for the following faculty positions :

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Pay Scale: Rs. 4500-150-5700-200-7300
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(b) An outstanding scholar with established reputation who has made significant contribution to knowledge;

OR

(c) A senior administrator in All India, Central, State or allied services/public sector undertakings with at least 10 years' experience in a senior position and relevant to activities of the Institute in the area of specialisation.

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(ii) At least five years' experience:
  (a) in the field of training/teaching of Post-graduate classes; and
  (b) Conducting and/or guiding research in the relevant field;

OR

A Practising Administrator in a senior position in Government services, with at-least five years experience relevant to the activities of the Institute in the area of interest.

Preferential Qualifications

Proven expertise and merit in the field(s) of (a) Research, (b) Training, (c) Consultancy, (d) Curriculum Development, (e) Innovations in teaching and training methods, (f) Writing/editing reports, books and book reviews, (g) Case Studies.

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2. One Reader in Behavioural Science
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4. One Reader in Management
5. One Reader in Urban Development.
6. One Reader in Municipal Laws
7. One Reader in Environmental Studies

One Lecturer in Environmental Studies

Pay Scale: Rs. 2200-75-2800-100-4000
Age Limit: Preferably below 40 years,

Essential Qualifications

(i) Master's Degree in one of the Social Sc ences or Natural Sciences with consis tently good academic record-first or hig second class OR B+ in the grading sys tem.

(ii) A doctorate degree or published re search work of equivalent standard.

Preferential

(i) Experience in teaching/training and/c conducting research in the broad area of environmental studies.

(ii) Has qualified the test for lectureshi conducted by the UGC.

Prescribed qualifications and age limit re laxable on the recommendations of th Selection Committee, in case of exception ally qualified/experienced candidates.

Appointment may also be made on depu tation. The Institute may also consider th names of suitable candidates who might hav not applied.

Appointment shall be made on probatio for a period of one year which can be ex tended to two years.

The Institute reserves the right to fill c not to fill the post. Other things being equa preference will be given to SC/ST cand dates.

Persons in employment should appl through proper channel.

The posts carry allowances such as D.A C.C.A., H.R.A. as per rules of the Institut which at present correspond to those admi sible to the Central Government employees

The prescribed educational qualificatior are minimum and mere possession of th same does not entitle candidates to be calle for interview. A limited number of cand dates, on merit and experience, will be calle for interview and it will not be obligatory o the part of the Institute to call all eligib candidates for interview.

Candidates called for interview from ou side Delhi will be reimbursed first class ra fare to and fro by the shortest route on pr duction of either money receipt or tick number.

Completed applications on the prescrib forms should reach the Registrar, Indian I stitute of Public Administration, Indra rastha Estate, Ring Road, New Delh 110002, by **30th September, 1990**. Incor plete applications may not be considered

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UNIVERSITY NEWS

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Editor :
SUTINDER SINGH

Role of the Vice-Chancellors and a Case for Pro-Vice-Chancellors

Raja Mutthirulandi*

'The Vice-Chancellor of a University is by far the most important functionary of the institution not only on the administrative side but also for securing the right atmosphere for the teachers and the students to do their work effectively and in the right spirit'. It has become a matter of great concern to all those interested in and involved with the happenings in the domain of academic governance that certain misconceptions about the roles of vice-chancellors, their mode of appointment, their tenure etc. exist and effective ways and means are not adopted to help the vice-chancellors play their crucial roles effectively and with ease.

There is general agreement that the heads of the Universities should not be chosen on petty political, religious and caste considerations but they should be selected only on the basis of their real merit, acknowledged scholarship and proven dynamism. Differing suggestions have been made regarding the mode of selection, the tenure of the vice-chancellors and even entry-point age limit for the persons so appointed.

Though there is a general clamour for all-India based selection in many spheres, in the matter of selection of vice-chancellors such proposals for selection on All-India basis (from other states as well) may not prove to be practical at all. The vice-chancellor is the pivotal figure in a University. As the Chairman of its Academic and Executive wings he has to provide effective leadership, liaison and link between the academics (in the university) and the outside world. In many universities in our country education is being imparted mostly in the medium of local/regional languages. Proceedings of the authorities, committees etc. of the universities, communication between their constituents takes place through the official (mostly regional) language of the State. Of late, we are also hearing of certain States (like U.P., Bihar) banning English altogether in favour of Hindi. To discharge his duties effectively, the vice-chancellor cannot be an 'alien' to his service-zone, the University, but should belong to the State and be fully familiar with the educational needs and aspirations of the area, aware of its academic potentials; equipped in all respects to address to the problems of the local educational market, consumers at hand and be able to effectively communicate with all sections involved in the educational process in the region of his operation.

Regarding the tenure for the Vice-chancellors, it would be interesting to know what Lord Robbin's Committee of the United Kingdom had to say (indirectly; of course!): "Arrangements for making the most important single decision of selecting the Vice-Chancellors are not made easier by the fact that such a decision may arise only once in ten to twenty years!" The Gajendragadkar Committee on Governance of Universities (1971) recommended a 'five-year term for the Vice-Cancellors and also made them eligible for reappointment for another term'. Most universities in our country and all universities in Tamil Nadu provide for a three year term for the vice-chancellors and their eligibility for reappointment. The Gajendragadkar Committee also felt that it would not be 'realistic' to prescribe any age limit for the vice-chancellors but expressed that 'in the case of full-time job, the persons appointed to the post of vice-chancellors should not have crossed 65 years of age at the time of their appointment'. Regarding the lower age limit, the committee made a bold and innovative suggestion (yet to be put in practice) that 'liberalised leave rules should

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be made to enable the appointment of experienced and youthful teachers who can come on 'leave of absence' from service and can revert to their original stations, to continue service, after completing their tenures (as VCs)'. They may have possibilities of reinduction also. In the light of the above, it would become clear that any suggestion to divert the tenure of the vice-chancellor to 'one three-year term' and to 'catch them young' while they are 'below 50 years of age' (requiring perhaps a certificate of 'good health'!) would only exhibit disjunction of purpose and be away from the existing learned proposals. Absence of any possibility to continue the good work as the leader of the University, would make the vice-chancellors loosen the binding cords of their interest and involvement, 'pull-out' motivation from them and would close the doors of their initiatives.

Coming to the mode of selection and appointment of the vice-chancellors, the same UGC Committee (1971) expressed the view that 'uniform system for all the universities is not possible'. The system practised in Tamil Nadu—selection of the vice-chancellor from a panel of three names suggested by a committee consisting of the nominees of the State Govt., the Senate and the Syndicate (Executive Council) and the appointment made by the chancellor (the Governor)—lends credibility to and fairness in the selection of the vice-chancellor, besides bestowing the dignity of appointment!! This kind of arrangement has been working smoothly here over the years (except once in the case of Madras University recently). In the matter of selection of vice-chancellors, the Tamil Nadu model is worth emulating and adoption throughout the country.

No other enterprise would impose on its chairman, the variety and burden of work that the modern university requires of its vice-chancellors! They have to play a role which probably, unfortunately is seldom precisely spelt out in the written constitutions of the universities and the vice-chancellors have to bear the 'insupportable burden' in the matters of performing heavily taxing administrative, law and order maintaining, ornamental and other varied functions as the principal executive, academic head, protector and defender of the Act, Statutes, Ordinances and Regulations of the university. Further to these, he is the chairman of a plethora of committees/bodies like the Senate, the Syndicate, the Standing Committee on Academic Affairs, Finance Committee, Selection Committees etc., etc., within the university. In accordance with his stature, eminence, popularity etc., he will, very often, be drafted to work on various panels, committees, bodies etc. outside the university also!

Instead of ever attempting or thinking of clipping the wings of tenure of vice-chancellors it would be worthwhile to think of providing the vice-chancellors with able 'deputies' who could relieve them from many parts of their routine and other work and make them available for the reallly challenging and innovative leadership functions. Steps could be taken in the direction of appointment of Pro-Vice-Chancellors to assist the Vice-Chancellors in their functions in all Universities. The Pro-vice-chancellors could be chosen by the incumbent vice-chancellors (on the approval of the Executive Council-Syndicate—if need be) from among the academic administrators available within the structure of the respective University. The term of the Pro-vice-chancellors could be made shorter such as to fall within the term of the vice-chancellor. The Pro-vice-chancellors need not be vested with elaborate administrative powers but be empowered to act fully within the limits of delegation of powers made by the vice-chancellor. Being the leader, the vice-chancellor should master the art of delegation of duties to the Pro-vice-chancellor and still retain overall control and direction. It would not be very difficult to find out ways and means of providing 'incentives' to the Pro-vice-chancellor to enable him effectively assist the Vice-Chancellor.

As one involved in drafting the entire statutes of a newly established University in Tamil Nadu, the author had opportunities to study the Act, Statutes, Ordinances and Regulations of various Indian universities (Affiliating, Unitary and Professional) and found that surprisingly there is no specific provision for the removal of the Vice-chancellor, if he is found to be ineffective, corrupt and unworthy of further continuance in the best interests of the Institution. Even the highest office of the President of India has not been spared by the framers of the Constitution and provision for the removal of the President through impeachment has been incorporated in the Constitution. The intention of this writer is not to have a 'threat-clause' or 'punitive-provision' in the University Acts but to proivde for a 'safety-latch' in case there is blatant violation of Acts, Statutes and norms by an errant vice-chancellor! Incorporation of a provision for the removal of an erring vice-chancello will have regulatory effect on the part of the incumbents and all other officers of the university.

The vice-chancellors who show creative imagination and continuous initiative in building up the universit and in fulfilling its objectives should be retained with respect and dignity to motivate them increase thei services and contribution for societal purposes. Instea of dwarfing the tenures of the vice-chancellors, w should think of providing them able deputies—the Pro Vice-Chancellors who would help the vice-chancellor prolong their services in innovative academic sphere aimed at enhancing the quality and purpose education. Considering the countless roles the vice chancellors have to play, it is better to initiate earl steps to provide them 'service-insurance' coverag through Pro-vice-chancellors in all the universities.

PURPOSE AND METHODS OF TEACHING HISTORY

K. Subramanyam*

The use of the word 'methods', generally arouses anger or repulsion among college teachers, because college teachers, generally think that methods of teaching are meant only for schools and not for colleges. Such a thinking is not based on the scientific views of educationists. All over the world, educationists believe that teaching and learning become effective when teaching is done in a methodical way. Unplanned, or haphazard teaching even at the college level will not promote learning.

An awareness of the various methods or techniques which can be adopted for teaching history, will help the history lecturers to improve their skills as teachers. No method or methods can be considered as the best for all lecturers and for all classroom situations. As teaching is an art, teachers have to adopt various methods depending on the size and composition of the class, the facilities available in the college for teaching, and the lesson or subject matter to be taught.

Purpose of Teaching History

If we are clear about the purpose of teaching history at the undergraduate level, our effort to make history teaching more effective will be fruitful. Students may have different perceptions regarding the purpose of their study of history. Some might have chosen the subject thinking that it will be useful for competitive examinations. Some others might have taken it thinking that it is an easy subject. However, in the case of all the students, the primary goal of studying history will be to pass the examination. Though preparing the students for examinations is important task of the teacher, in that process the teacher should acquaint the students, with the "intellectual discipline" of history or with the "fundamental principles" of the subject. Keeping in view that objective, John C.B. Webster defines the purpose of teaching history at the undergraduate level as "to initiate the student into the conversation between the past and the present which is history so that his participation in it will be intelligent and beneficial". The purpose mentioned above implies (1) that history is to be taught as a "conversation between the past and the present" for a better understanding of the present; (2) that history is to be taught, to enable the students to develop the spirit of inquiry; and (3) that students should be given a working knowledge of the process of history writing or the historical method. For achieving the purpose, different methods can be adopted, which are discussed below.

1. Lecture Method

In many colleges, the lecture method is probably the only method which is extensively used by the lecturers in the classroom. As this conventional method is in use since a long time, this method of teaching in colleges is passed on from generation to generation. It has many advantages. It is easy to adopt. It saves the time of the lecturer and students and when the lecture is interesting and inspiring it will motivate the students to take keen interest in studies. But the lecture method has certain serious disadvantages also. It makes the students or learners passive and thus vitiates the learning process. It suffers from the disadvantage of creating monotony among the students as well as the lecturer. As effective learning can take place only when the students are active and when they are not having the feeling of monotony, the lecture method has to be supplemented by other methods of teaching. The lectures instead of being merely informative should be thought provoking and enable the students to think critically.

2. Question-Answer Method

To get the best results from teaching, the question-answer method is useful. A couple of question-answer sessions for a few minutes in each class will enliven the atmosphere in the class. It has the advantage of keeping the students attentive. It will also make the students study their lessons at home. Asking questions is an art which can be cultivated with experience. Questions should never be asked to expose the ignorance of students or to humiliate them. Questions should be asked with the sole objective of helping the students to learn better. When a student is not able to answer a question, instead of admonishing or insulting the student, the lecturer should give the answer to the question.

3. Discussion Method

Discussion method is one of the valuable methods of teaching history. The aim of this method is to generate thinking among the students. As one of the aims of teaching history at the undergraduate level is to develop the spirit of inquiry among the students, this method can be used by college lecturers to promote thinking among the students. The general complaint of lecturers is that large classes are not conducive to use this method, and that it can be effectively used only in small classes. But even where classes are big, the discussion method can be adopted by dividing the class into groups. Topics on which different views can be expressed can be taken up for adopting the discussion method. For discussion, topics which arouse the imagination of the students can be given. For example, there can be discussion on what would have happened if the Mongols had destroyed the Delhi sultanate.

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Discussion method helps the teacher in actively involving the students in their learning process. Seminars and tutorials give full scope for adopting the discussion method. The seminars and tutorials will enliven the learning process, by giving ample scope for the students to take active part in the process of learning.

4. Assignment Method

Assignments are useful to make the students active partners in the process of learning. Preparation of time charts, genealogical tables, comparative charts etc., which will bring out the creative talents of the students, can be given as assignments to students. Preparation of essays and answers to important questions can also be given as assignments. Assignments keep the students busy in holidays and motivate them to take to their studies seriously. It may be argued that students in college do not relish assignments and that even if assignments are given, they will not be done. Such arguments are generalisations which are not valid in all colleges. With the persuasion of the lecturers, even college students can be made to do the assignments given to them.

5. The Source Method

Of all the methods, the source method is the most effective to make teaching of history interesting. The use of the source method implies teaching of history with reference to sources. This method introduces the students to the essence of history. It brings the past alive to the students. Showing some source materials and discussion on those materials, will create interest in the subject among the students. Teaching history without reference to the sources, is doing great injustice both to the students and the subject. The student must be exposed to the actual work of the historian even if it is for a short time. As Peter Bamford points out, the use of the original sources in the classroom adds a new dimension to the teaching of history and involves the students in the job of the historian instead of being the "unwilling recipients of the hand material which is already dead before it enters their experience". The use of the source method helps the teacher to achieve the goal of providing the students with a working knowledge of the process of writing history or the historical method. While making use of the sources, the teacher should explain how the historians come to their conclusions, to enable the students to understand the process of historical investigation.

6. Correlating History with the Present

The past becomes interesting when it is correlated to the present. A mere factual presentation of history makes the subject boring. To make it lively, historical events have to be related to the present. It is always possible to compare the past with the present or the present with the past. While explaining Mauryan Administration it can be compared with the present administration or while explaining the economic reforms of Alauddin Khilji, it can be discussed whether it is possible to implement such reforms in modern India. To give another example, the regimented life in sparta of ancient Greece can be compared to modern communism. Certain problems of present day, like the problem of political terrorism can be discussed and the students can be asked to suggest solutions to the problems making use of their knowledge of history.

7. Use of Audio-Visual Aids

The use of audio-visual aids is also necessary to make teaching of history effective. Blackboard, maps, charts, slides, films and such other audio-visual aids can be used. Even if sophisticated aids like slides, films etc., are not available, maps, pictures, photos etc., which are easily available can be used in the history class. The use of these aids makes teaching of history, vivid and lively. The Chinese proverb "a picture is worth a thousand words" emphasises the value of the use of visual aids in teaching. Unfortunately even simple aids like the blackboard and the maps are not used by many college teachers. Neglect of these aids is one of the reasons for the lack of interest among the students in the history class. This however does not mean that the aids are more important than the teacher. The aids are intended only to supplement the effort of the teacher. It has been rightly observed that "There is still no machine which can achieve what a teacher can".

8. Excursions and Projects

Excursions to nearby places of historical importance are of great value to students of history. One or two excursions in a year to nearby places can be easily conducted. Forts, Temples, and other monuments, archaeological sites where excavations are conducted can be shown to students. Preparatory and follow up work for excursions is necessary to enable the students to derive maximum benefit from the visits. Projects like, historical exhibitions, enacting historical dramas, collection of material for local history etc., can also be

(Contd. on page 7

REDEEMING TEACHER EDUCATION IN INDIA

Saroj Pandey*

Teacher is one of the most vital components of education system. The progress of any nation depends much upon her distinguished teachers and the quality of teacher education programmes. Teacher performance is the most crucial input in the field of education. No matter how effective are the aims of education and however modern and abundant the equipment and administration, in the absence of effective teacher all these prove futile and useless. We are now on the threshold of development of new technologies and are fast moving towards twenty first century. But unfortunately, the process of upgrading the curricula of teacher education has been very slow. The teacher training too is not planned and organised to develop the spirit of inquiry, initiative, scientific temper, conceptual clarity and linguistic skills for effective speaking and writing which teachers are expected to impart to their students. Educationists, administrators and planners have always expressed their concern on the irrelevance of existing training programmes and needed reform in teacher education from time to time. UGC, NCTE, and NCERT arranged a number of National conferences at various places during 1976-77 but nothing substantial came out. One thing which has always been felt is that nine months duration of present training programme is too short to inculcate professional skills, attitude, values and outlook in student teachers. With actual training period of nearly 6 or 7 months these students can neither do justice to theory nor to practice. As these students are fully mature it is also difficult to mould their personality or change their outlook. Hence it has been felt that these skills and values can be more easily developed among students if we can catch them young and give them a fairly long period of training in the college life. Following this principle the NCERT established four Regional Colleges of Education (RCE) during 1960s on an experimental basis. It is unique experiment in our country and these colleges are providing quality education to their students, helping in the development of total personality through their varied programmes. These have also contributed to the field of teacher education by organising various in-service training and orientation programmes, seminars, workshops etc., at various levels.

The basic philosophy underlying these colleges is that the teacher is a professional person and as a professional person he should be well up in general education, content background or subject matter specialities and the professional or pedagogical education, which should revolve round psychology generally and psychology of child and learning theory specifically, and the values and historical perspectives of education as a profession, besides the clinical phase of preparation of teachers through student teaching. It believes that if student-teachers are given competent instruction and opportunities to learn in each of these three areas, they can turn out as capable teachers.

The method of teaching the students theory as well as practice teaching is novel in these colleges which sets an example for others to follow, if they wish to professionalise teaching profession. Four year integrated B.A./B.Sc. B.Ed. was introduced for the first time in our country in these colleges. These colleges offer such a variety of specialised courses to prospective teachers which no other institution in this country provides. The most remarkable feature of RCEs is the new interdisciplinary approach to education. It has always been felt that we should adopt interdisciplinary approach to education. Although the first attempt in this direction was made by Kurukshetra University in 1960, the RCEs have added a new dimension to this effort with their variety of courses. Besides B.A./B.Sc. B.Ed., these colleges offer a One Year B.Ed. course with specialisation in science, commerce, elementary education, technology, fine arts and home science, and two year M.Sc.Ed. in Life Sciences apart from One Year M.Ed. and Ph.D. courses. Such a variety of specialisations are seldom provided by any traditional training college in this country.

It is a general complaint from all sectors of society that trained teachers do not have enough mastery of the subject matter, and therefore, are unable to teach effectively in classroom. The RCEs provide mastery of the subject matter and various teaching skills in their integrated programme. The content of integrated education includes subject matter, professional education and general education. It is remarkable that these programmes are not merely 3+1 but provide an integration in a real sense consisting of 60% content of

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the subject matter, 20% professional education and 20% general education leading to two university courses. Hence the student teacher not only gets knowledge of this subject area but also how to impart this knowledge in actual school situation.

As the students are picked at a very young age, i.e. just after completing their higher secondary education and stay in the campus for a long period of time (from 8 to 5 P.M. instead of 10 to 4 P.M. and 10 teaching periods instead of 8 periods of other training institutions) it is very easy to inculcate professional skills and values in them. The residential nature of RCEs with a number of curricular and co-curricular activities throughout the year helps students not only to remain active throughout the period of their stay in the institution but also helps in the all round development of total personality of future teachers. The unprecedented explosion of knowledge that has occurred in recent years has made new demands on teacher education. The RCE project has demonstrated that its teacher educators are better prepared to meet the new challenges. The other important feature of RCEs is internship in education which has started almost a new era in education. Practice of teaching is the most important part of teacher education but unfortunately the most neglected part of training. We all are aware of how the required lessons are taught in classroom. Student teachers complete their required lessons in hurry ignoring all principles of education. Sometimes a student-teacher, teaches four or even more lessons in a day in a hurry to complete his lessons. Thus lessons are covered by 'numbers and not by principles'. Hence neither the supervisor nor the students can do justice to teaching. It is an established fact that mere delivery of a fixed number of lessons in a school does not enable a prospective teacher to get acquainted with all the aspects of school life. Therefore, internship in teaching has been designed to make the student-teacher familiar with the school as a whole by exposing him for atleast a limited period to the programmes and activities of a school in a realistic setting. Internship places the student teacher in the school situation as a full time apprentice for eight to twelve weeks in which he is initiated in the art of teaching. The cooperating school, selected from various states under the jurisdiction of Regional College, apart from local schools not only provide all facilities to student teachers but also make them feel as full time teachers of the school throughout the duration of their stay. It helps not only in developing a sense of belonging and involvement in their work but also makes teaching more exciting, challenging and pleasant experience than for their counterparts in traditional One Year B.Ed. courses. It is a novel experiment in the field of teacher education which Miss S. Panandikar, the then member of the Education (Kothari) Commission observed during 7th Conference of All India Association of Teachers Colleges, as "Teacher education should be the joint responsibility of training colleges and the schools where practice teaching is done, a responsibility accepted as such by each partner and shared actively."

RCEs have been champions not only in the field of teacher preparation but they have also been engaged in research studies related to different aspects of school education, teacher education, development of instructional materials for the use of teacher educators, and training and extension activities for qualitative improvement of school education and teacher education. During 1987-88 nine such programmes were organised by RCE, Ajmer and 26 orientation/training programmes, conferences and workshops by RCE, Bhubaneswar, besides three programmes on population education and two programmes on education of disabled. The college also assisted the states in conducting training programmes for in-service teachers under the programmes of mass orientation of school teachers (PMOST). RCE, Mysore in addition to its role of setting the highest standards in the country of pre-service teacher education, has been functioning as a nodal centre in the southern region for the implementation of the policy thrusts in teacher education as envisaged by NCTE and the NPE, 1986. The college is involved with a variety of centrally-sponsored schemes in education such as the Computer Literacy and Studies in Schools (CLASS) project, inservice teacher education programmes, population education etc. The contribution of college in the field of developing instructional materials, training of key persons and extension of the research and development can be judged by the fact that out of 37 council programmes held at the college, 26 were the utilised in these areas. These colleges are also doing tremendous effort in the area of training resource persons under the integrated education scheme for various handicapped children, besides orienting teachers at elementary and secondary levels with new instructional techniques in teaching various subjects.

Hence through their multi-faceted programmes these institutions are not only trying to educate future teachers but are also helping in-service teachers to update their knowledge and get acquainted with the new developments in the field of education. Such enriched environment is seldom available in one year training institution where once a teacher is appointed he becomes stagnant for rest of his life. These colleges are not behind any other university or institute in the area of research also and many fruitful researches are still going on apart from a number of research projects undertaken by these colleges. The Demonstration

Multipurpose Schools attached to RCEs function as a laboratory for trying out innovative practices in school education and teacher practices.

Thus with their novel approach to education, the RCEs are trying to help in all round development of students in a real sense. The residential nature of these institutions, where students from all parts of the region come and live together, helps in development of great humanitarian values of love, patience, tolerance and sympathy in students. Students get an opportunity to get acquainted with the traditions and customs of each other. In fact these colleges present a look of real national institutes and national integration can be seen practised here with providing same and equal status to each and every student. Various curricular and co-curricular activities such as debates, cultural weeks, picnics, sports weeks etc., keep students busy, active, enthusiastic and lively throughout their stay in the college and help in developing sound, healthy personality with broad outlook to life. With providing real school life atmosphere to student-teachers during internship period in different states, the college tries to inculcate a professional outlook in student and professionalise teaching as much as medical, engineering or any other profession. Kapur committee appointed by NCERT in 1974 to review the One Year and Four Year Courses run at RCEs under the Chairmanship of Dr. J.N. Kapur reported RCE products superior in all four aspects of (1) class teaching, (2) knowledge of contents, (3) Co-curricular activities, and (4) Professional attitudes than traditional B.Ed. students. Four Year course of RCE was also considered superior to its One Year course.

The committee supported the integrated approach and recommended the starting of more four year teachers' colleges like Regional Colleges of Education. Therefore if we want to professionalize education and improve teacher education we must catch students at a very young age as in other professions, and provide them education for a longer period of time with new and better technologies. NCERT in its circular letter (F-16-47/83/NCTE dated Aug '83) to all universities and State Education Secretaries requested the States and universities to start at least one four year integrated college of education in their jurisdiction. But to no effect. We should once again review the feasibility of starting such colleges if we want to produce competent, well informed and effective teachers. □

Purpose and Methods of Teaching History

(Contd. from page 4)

undertaken depending on the availability of resources, interest of the staff and the students and other related matters. It has been rightly pointed out that "History is too vast a subject to be confined to a classroom and too far-ranging to be restricted by a time table".

Dictation of Notes

The worst method, if at all it is to be called a method, is the method of dictating notes. Dictation of notes kills the initiative of the students. Some lecturers reduce themselves to the position of dictating machines in the classroom. They cannot be considered as real well wishers of the students, because by dictating notes, they are preventing the mental growth of the students. The practice of dictation of notes in the class has no justification. History teaching has to be relieved from the monotony of the monologue of the lecturer and the practice of dictation of notes, if it is to become a vibrant process.

History—a Mode of Inquiry

History at the higher levels has to be taught as a mode of inquiry rather than as a body of knowledge. It is not enough to narrate the events in history. Analysis, interpretation and value judgements should become part of teaching history. An explanation of the 'why' in history instead of mere cataloguing of what happened in the past will promote thinking among the students and will also make the subject interesting. In other words "history lectures should be more analytical than narrative".

Widening the Historical Horizon

Arnold Toynbee states that historians like scientists have an impact on society and that if the historian is a teacher his impact is "direct and immediate". "The widening of the historical horizon" of the student is an important task of the history teacher and to do this as Toynbee says the teacher "must begin by widening his own".

Variety and Adaptability

If there is a deep and constant urge in the teacher to improve his teaching, he will be able to find the suitable methods for making his teaching effective. The methods suggested above are not exhaustive. They are only hints. Each teacher has to find out his own effective methods to make the teaching of the subject lively. Variety and adaptability are important. A variety of methods and the ability to adapt them to the situation in the classroom are necessary for successful teaching. To make history teaching interesting "history must cease to be a nasty medicine which has to be swallowed and become a pleasant topic". The key role in making the process of teaching history lively, is that of the teacher. □

Appropriate Technology and Self-reliance

Leading Industrialist Dr. Nanubhai Amin, Chairman, Centre for Environment Education, Department of Environment, Forests and Wildlife, Government of India delivered the Convocation Address at the Annual Convocation of the Indian Institute of Technology, Delhi. Dr. Amin observed that " 'technology' is the application of fundamental laws of nature or basic sciences to meet our needs. Therefore, it is necessary for us to devise technologies which give gainful employment and at the same time improve the life-style of vast majority of our rural population." He added, "appropriate technology should, by no means, be equated with primitive technology. This requires adaptation of developed technologies as well as development of new technologies to make them relevant to our social and economic needs. It needs a real technological grasp and courage to arrive at suitable technologies that are warranted by our overall national interests." Excerpts

Several new vistas are opening up in the fields of industry, commerce and technology by removal of a large number of unnecessary controls and constraints. In this environment of liberalisation, self-reliance which is a must for a nation of our size, must not get a back-seat while we talk of acquiring resources and technology from abroad, for economic and social development through industrial and technological collaborations.

advances in other countries in such fields as Rocketry, Atomic Energy, Electronics, and sophisticated Chemical Engineering technologies. We forget that without advancement in the agricultural field and without improvement of living conditions in our villages, the base of a prosperous national economy cannot be built and without this base, progress in other fields cannot mean much for the large population of our country.

Convocation

Only a few people—the most notable being Mahatma Gandhi—have understood the real significance and value of technology for the Indian situation. Curiously enough, many of us who call ourselves engineers and scientists fail to recognize the need for development and application of technology appropriate for improving the life-styles of a large number of our population. We tend to be carried away in this sensational space age by technological

Proper application of technology has tremendous effect on the economy and social life of a community. We, in India, have abundant labour but not much capital. Not all the employable individuals are at work and many of those who are at work are not fully employed. It is the intelligent application of appropriate technology that can provide a solution to our basic problems of unemployment and poverty.

What is "Technology"? "Technology" is the application c fundamental laws of nature or basi sciences to meet our needs. Therefore, it is necessary for us to devis technologies which give gainfu employment and at the same tim improve the life-style of vast majority of our rural population.

Quite often in these days of high tech, many people tend to regar Gandhiji's ideas on technology a outdated and primitive. In Gandhiji's scheme of things, a village the primary social and economi unit. It is not a village where peopl live in poverty, dirt and helples situation. It is a village which is ru on the principles of participativ democracy with the maximum autonomy of need based economy. I will have all the facilities that ar required including electricity an technologies that do not create co tradictions in terms of quality of li and of social values. This kind c village would certainly have a basic amenities of water, fuel, education and recreation includin Television and Radio.

Considering this, it is imperativ that we make use of technology appropriate to our social an economic realities. For the lon term development and to improv India's competitiveness, it is nece sary to absorb as much hig technology as possible in selecte areas. But in regard to use c technology to improve the life-sty of a large number of people livin in our villages, we have to do something very different.

I would like to emphasise that a propriate technology should, by n means, be equated with primitiv technology. This requires adapt tion of developed technologies well as development of ne technologies to make them releva to our social and economic need It needs a real technological gra and courage to arrive at suitab technologies that are warranted l our overall national interests.

This means that we have to develop capabilities to make use of technological development from all over the world for our own situation. We have to improve basic amenities for large number of population, 40% of which lives below poverty line and 75% of which lives in villages.

Thus, national self-reliance is imposing on us a large number of problems and we, as engineers and scientists, should look at these problems in the national perspective. In this difficult task, it is encouraging for us to know that many other countries have found solutions through their own distinctive styles.

Let me take up one of the most important requirements of a developing economy, i.e., the required amount of energy for our agricultural, industrial and social needs.

Any significant developmental activity to improve our economy is bound to require additional inputs of energy in its various forms. We must plan for making this input adequately available. I would like to emphasise here that science and technology have presented to us plethora of energy and fuel forms to choose from. But, in spite of such a wide range of options, it is indeed difficult to identify even one or two sources where either availability or the price is not a major problem. It is in light of this that various forms of renewable energy assume importance.

The centralised energy supply systems based on coal, oil, gas or electricity have posed problems of adequate availability and equitable distribution—particularly for hundreds of thousands of remote villages in India. To overcome these problems, the energy supply system for our villages should be such that:

1. It should be 'energisation' of rural areas rather than only 'electrification'.
2. The dependence on external factors should be minimised and the control should be returned to the local populace as much as feasible.
3. As far as possible, locally available renewable sources of energy must be put to use.
4. Quality of energy must not be compromised while these factors are considered.
5. Benefits of increased energy availability in all forms must be distributed equitably.
6. To ensure control at local level, community development must be a key to the energy supply strategy.

According to me, the real option to meet the energy needs of our rural areas to a considerable extent, lies in renewable energy. We must consider seriously the decentralised energy systems where local population will have control of production and management of their own energy requirements—particularly when more than 85% of energy needs of a rural household is for cooking.

The question of developing technologies or options that can be afforded by the vast rural population is the one that comes up rather frequently in any discussion on rural development. If we were to evaluate alternative options for energy purely on the basis of what can be afforded by the vast rural population below poverty level, we would end up ruling out just about every traditional energy option. It is here that one must emphasise the role of national policy. We, as a nation, have to choose options which are in the larger national interest at the macro level. From there, we have to move to the formulation of appropriate policies so that even for individuals at the micro level, the selected options make sense. Several steps have been taken in the past in various spheres but what is needed now is higher priority in formulating and implementation of appropriate policies and incentives, so that renewable energy options can start contributing adequately.

Most of us seem to recognise the dangers of non-availability of fossil fuels or the difficulties with regard to breeder and fusion technology. The latest Tata Energy Research Institute report clearly indicates that we are going to run out of fossil fuels in not-too-distant a future. We cannot import fossil fuels, i.e., either coal, oil or natural gas in the quantities which we need and are likely to need in future at the rate at which we are expanding our uses. This is one situation where development and use of appropriate technology has become very imperative.

Collectively, somehow the inertia of mass thought prevents our society—as a matter of fact humanity itself—from taking appropriate actions to prevent on-coming hardships. This basic phenomenon is indeed true not only of the energy problems but of all other problems that we as a society or humanity face—be it the question of recurring floods or pollution or deforestation. It is, therefore, all the more necessary for us to make sure that after we have reached certain conclusions, we shake up our lethargy and get on with the task of accomplishing whatever goals we set ourselves. For, to my mind, there is no failure as severe as one's failure of not doing anything at all.

Technologies, as are in vogue in the industrially advanced countries, have been developed to match their resources and the needs of their social and economic situation. The conditions that generate and foster technologies—social needs and conditions, natural and human resources, capital, climate, etc.—are vastly different in our country as compared to the conditions in the Western world.

Reasons for this are several. Firstly, technologies of developed countries are capital-intensive whereas we need labour-intensive technology. Technologies developed abroad assume the availabilities of mass markets, highly skilled and trained personnel both for production and maintenance. These assumptions often do not hold good in our country. Therefore, such technologies are often less meaningful and more costly.

Since India is very short of foreign exchange, the matter is further aggravated.

Secondly, equipment developed abroad makes use of latest materials of construction available there which are not available indigenously. As a result, due to restricted or irregular availability of such materials in our country, production and productivity are affected adversely resulting in increased costs.

Thirdly, the equipment and machinery developed require skilled manpower for start up of manufacture and later on for its maintenance. As such skills are not always readily available, in case of breakdown of sophisticated equipment, production capacity remains unutilized for long.

Finally, quite often people talk of durability and extra fine quality of the products produced by these technologies. In many cases, however, where technological changes are rapid, durability beyond a point may become a liability. A more durable product is exposed to a greater risk of being out-of-date. And the manufacturer has to carry this half-dead weight for long. Similarly, the quality argument also will not hold much water when it is considered that the critical raw materials and skills which contribute to the core of quality are not readily available and the local ones have to be used as substitutes.

All I am suggesting is, that the immense task of national self-reliance presents us with a large number of problems and we as engineers and scientists should look at these in the national perspective.

What I have said so far should not be construed to mean that we continue to live with primitive technologies. They urgently need to be made more appropriate by introducing innovations which make only a little more use of capital and energy than at present. Such innovations will help remove drudgery of work, raise the wage-level from their present dismally low levels, reduce their present high costs of production and improve the quality of products. Not only this, but judicious use of scarce resource of capital and abundant resource of labour, by employing appropriate technology, will benefit the nation in the long run by the forces of dynamism let loose by technological progress.

We are at crossroads of our economic development. As engineers and scientists, we have to take really bold decision to choose the right path since we have to be concerned more with the well being of our people and not only with technological development as an end in itself. I am convinced that we have no option but to accept Gandhiji's approach. This, however, need not only correct understanding but also ability to deliberately plan and achieve something, which has not been achieved elsewhere.

It is much easier to swim with the current and go the way the developed countries have gone, but to find a way for optimum utilisation of our immense manpower—brains as well as muscles—requires imagination and vision.

We are deluding ourselves if we think that industrialising our country in the same fashion, as is done in the Western countries is going to raise the standard of living of our people. It is benefitting and will continue to benefit mainly those engaged in industrial activity—all of whom do not account for more than perhaps 12 to 15 per cent of th population. In this process, the disparity between the rural and urba India is growing, encouraging increasing migration of rural peopl to urban areas, creating many socio-economic problems which defy solutions.

From now onwards, as you joi the mainstream of technical economic and social developmen of our nation, a great deal of responsibility will rest on your shoulders.

This means that it will be necessary for you to participate in the national debate on important issues o technological development and it applications. Unless in this countr we openly debate pragmatically an fearlessly on several issues confronting us in the field of technology, national decision-making process will not receive the require thrust in regard to usefulness an appropriateness of variou technological options for our nation.

Many many centuries ago, wha a great philosopher Pericles said i appropriate even now:

> "We must regard a man wh takes no part in public affairs no as harmless but as a useles character."

How often important decisions i our country are made simply because men and women of intelligence and capability do not participate in public affairs and expres fearlessly their views!

Before I conclude, I would lik to quote what the great scientist o our century Dr. Albert Einstei said:

> "Concern for man himself an his fate must always form th chief interest of all technologica endeavour. We should neve forget this in the midst o diagrams and equations." ☐

IGNOU Proposes Programmes on Radio & TV

The Indira Gandhi National Open University engaged in the task of taking higher education to the remote corners of the country, will soon reach out to more people through radio and TV. The university is reported to have approached the Government with a proposal to air programmes on radio and TV which would make a quantitative and qualitative difference in its function of providing higher education to the masses. According to Prof. V.C. Kulandaiswamy, Vice-Chancellor, to start with the university had asked for half an hour each on radio and TV three days a week.

IGNOU has already produced 200 video and 300 audio cassettes on a variety of subjects, he said. It has a production unit at Tughlakabad on the outskirts of Delhi and a post-production centre in the campus itself.

The video and audio cassettes are played in the study centres for the benefit of the students. They can also buy these tapes for their use at home.

There are about 133 study centres run by IGNOU all over the country. Some 6,000 counsellors provide guidance to the students in these centres. The study centres have libraries of their own and the necessary facilities for using the tapes.

IGNOU's proposed programme on radio and TV would not only cover the university's 77,000 students but also reach out to many more ordinary listeners and viewers who should be able to derive great benefit from the programmes. These would be of great use to students on the formal system, outside the open university's purview, as an educational supplement, the Vice-Chancellor said.

Another benefit is that the cassettes are a one-time investment and can be used by centres of learning all over the country.

In this context, Prof. Kulandaiswamy said that IGNOU, as an apex institution of open universities, had another responsibility—of coordinating the activities and maintaining the standards of distance education in India. "This was envisaged in the Act of 1985 by which IGNOU was established in 1985", he said.

More than 90% of the boys and girls in the age group 17-21 aspiring for higher education did not get it for various economic and social reasons as well as due to inability to face the fierce competition. "To those who have been denied the opportunity, the open university shows the way," Prof. Kulandaiswamy said.

The IGNOU offers courses in seven areas—humanities, sciences, social science, education, continuing education, management and engineering technology (diploma).

It proposes to start a professional course in computer management and water resource management in 1991-92.

Politicians and Varsity Autonomy

Dr. Sarup Singh, Governor of Kerala & former Vice-Chancellor of Delhi University, recently delivered the first U.N. Singh Memorial Lecture at the Delhi School of Economics. During the course of his lecture, Dr. Singh observed that the most unpleasant part of the Indian political culture was that, it had no respect for the autonomy of a university and distrusted academic freedom. The situation had come to such a pass today, that even Central universities worked under tremendous pulls and pressures, with the emergence of the viewpoint that since the Government provided the finances, it had a moral right to control the institutions.

In this regard, he said, all political parties, irrespective of their conflicting ideologies, were equally "enlightened". All cherished the leverage to control universities, mostly in matters of admissions, promotions and appointments.

One of the major flaws of the system was that, since the senate and syndicate of a university comprised mostly political figures, they often proved to be a hinderance in clean and efficient administration. He cited a recent incident, in which the university syndicate forced its vice-chancellor to suspend a teacher, even without adopting the proper procedure.

Dr. Singh said, universities in the West largely enjoyed such freedom which was denied in this country. Though the first conference of Indian universities' Vice-Chancellors, in 1924, had been assured by the Government of non-interference, the situation had deteriorated today, with the Government often treating the matter of appointing a vice-chancellor most casually, he said.

While in the earlier days, the Governor of a state, in his capacity as the chancellor, was the all-powerful person to deal with the appointment of vice-chancellors, he said, the situation had deteriorated to such an extent and the chancellor's authority eroded so much, that he was now reduced to merely 'affixing his approval to the nominee of the state government'.

Giving suggestions, Dr. Singh said, it was the need of the hour that student and teacher leaders should come forward and take the lead in stemming this rot. They should also disown all allegiance to any political party, professional agitations should be done away with.

Orientation Course for NSS Programme Officers

'Nothing is more rewarding for the NSS Programme Officers and the volunteers than adopting a village and developing it in a fixed span of time. Any amount of effort put in by them during the special or regular NSS camps will be of little consequence and is not worth it,' said Prof. Jafar Nizam, Vice-Chancellor of Kakatiya University while inaugurating a two-week Training and Orientation Course for NSS Programme Officers of Kakatiya University. Prof. Nizam advised the Programme Officers not to lose sight of the important component, that is character building, among the student community. This, he said, was possible only in NSS camps which gave an opportunity to interact with the students very closely. There was every need to emulate the example set by the Gandhi University, which achieved hundred per cent literacy in a village in Kottayam by adopting it for a limited period of time, he added.

Presenting the report, Dr. K. Subhash, NSS Programme Co-ordinator of the university, said that in 1976 the NSS started with 700 volunteers, the number had now risen to 12,500. The NSS was introduced in 36 degree and 35 Intermediate colleges and the number of NSS units had risen to 105, he said. Orientation course of this type would certainly go a long way in equipping the volunteers with the latest techniques to do better service to the community at large, he added.

In his presidential address Prof. E.V. Sundaram of the Department of Chemistry of Kakatiya University, stressed the need for taking up more and more schemes to increase the literacy rate and character building among the youth of the country.

MPAU Convocation

The 16th Convocation of the Mahatma Phule Krishi Vidyapeeth, Rahuri was held on 28th July, 1990. Delivering the convocation address Dr. P.K. Iyengar, Chairman, Atomic Energy Commission, Govt of India, said that agricultural research, farm productivity and educational programmes were being promoted by the basic sciences like physics, chemistry, and allied sciences. He said that Mendels Law of inheritance and developments in bio-technology had provided a scientific and sound base for breeding crop and animal species. High productivity achieved through contemporary crop varieties, animal breeds, poultry birds was the result of selecting desired gene and crossing with desired stock. He opined that agricultured research needed interdisciplinary approach and appealed to the agricultural scientists to collaborate with scientists from traditional universities and get involved in their research programmes to evolve research talent. He hoped that Agricultural Universities would take this kind of role in coming years in scientific endeavours and research. Only this would attract the talented students towards Agril. Universities, he added.

Dr. S.K. Dorge, Vice-Chancellor of the University while presenting the report of the University said that the University had contributed a lot in the field of Education, Research and Extension Education. The University had, he said, developed improved varieties of various crops which had helped to increase agricultural production in the country. He cited the example of groundnut variety "Phule Pragati" which became popular not only in the Maharashtra State but also throughout the country. This groundnut variety had brought a revolution in the yield of oilseeds. The university had done pioneering work in arid zone horticulture especially on Ber, Pomegranate, Mango and custard apple. The cultivation of these fruit crops was taken on massive scale by cultivators in the State. 'Ganesh, G-137' and 'Arkta' were the most promising varieties in pomogranate. The scientists had also been successful in developing a crossbreed cow with milk yield potential of 3200 litres per lactation.

In addition to development of improved genotypes, emphasis was also laid to develop Agro-Technology. Research was being undertaken on use of atomic radiation in collaboration with BARC for developing improved varieties of crops and pest management.

Dr. Dorge requested Dr. Iyengar to help the university in intensification of research work in respect of use of atomic energy which would be useful for the agricultural development programme of the state. He also emphasized its role in production of breeders and foundation seed production programme, and supplying seeds of vegetable crops, grafts etc.

594 students were awarded degrees in various disciplines, and sixteen graduates were presented medals and cash prizes.

School of Vedic Studies

A School of Vedic Studies has recently been inaugurated at the Rabindra Bharati University. The object of the School will be to promote studies in the field of Vedic literature, to make available the results of these studies to the public and to extend all possible help to persons/institutions interested in the subject. The School will sponsor lectures, hold seminars, collect and preserve manuscripts, record traditional Vedic recitation, and bring out a journal and/or other publications. The school, which was conceived by the University authorities in 1980 for conducting Vedic research according to modern methods, has come into existence through financial assistance of the University Grants Commission and the Govt. of West Bengal.

Refresher Course on Research in Education

The Academic Staff College of the Kerala University organized its first refresher course in which 23 lecturers from Kerala University, Mahatma Gandhi University, Calicut University, Bangalore University, Mangalore University and Karnatak University participated. The thrust area was 'Research in Education'.

During the four-week programme, lectures, seminar, field visit, project work and open session, were organized to equip the participants with the latest information in the thrust area.

News from UGC

Countrywide Classroom Programme

Between 25th August to 31st August, 1990 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission
6.00 a.m. to 7.00 a.m.

25.8.90

"Jean Rouch—A Retrospective-II"

"Tune in to Desert Tunes"

"Wonder Working Light"

26.8.90

No Telecast

27.8.90

"Glimpses of Science at Physical Research Laboratory"

"Management-3: Management Principles"

"Secrets of the Stone Water"

28.8.90

"Preparing a Standard Solution"

"Study Skills"

"Intraocular Lens Implantation"

29.8.90

"Solar Research-I"

"Forts of Deccan-I: Daulatabad"

"Basic Nature of Sexual Reproduction"

30.8.90

"Electrical Circuits-IV"

"Mapping the Ocean Floor"

"Paninian Linguistics-III"

31.8.90

"The Life Style in the Eye of a Greek Philosopher"

"The Pursuit"

2nd Transmission
12.00 noon to 1.00 p.m.

25.8.90

"Chinese Paintings"

"Bhavai: The Folk Drama of Gujarat"

26.8.90

No Telecast

27.8.90

"Nuclear Techniques in Material Research"

"Management 9: Humanising Work"

"Perestroika in Agriculture"

28.8.90

"The Halogens"

"Non-Invasive Diagnosis-I: Update on Nuclear Imaging"

29.8.90

"Thermal Power Generation"

"Science for People"

"Plant Fossils-IV: Biospheres of the Past"

30.8.90

"Computer in Distance Education"

"Geothermal Energy"

31.8.90

"The Life Style in the Eye of a Greek Philosopher"

"The Pursuit"

Concern Over Uncertain Tenure of VCs

The University Grants Commission has viewed with great concern the practice of appointment of Vice-Chancellors of State Universities at the pleasure of the Chancellors (Governors) and the tendency to remove them (Vice-Chancellors) *en masse*. The Commission feels that this is highly detrimental to the university environment, maintenance of standards of higher education

We Congratulate. . .

1. **Prof. Ramlal Parikh, Vice-Chancellor, Gujarat Vidyapeeth & Vice-President, AIU, who has been appointed member of the University Grants Commission.**
2. **Dr. Hari Govind Singh who has taken over as Vice-Chancellor of the G.B. Pant University of Agriculture & Technology, Pantnagar.**

and the dignity of the office of the Vice-Chancellor.

The Commission's sharp reaction emanates from the fact that recently a State Government tended through ordinance and amending the State University Act to empower the Chancellor/Governor to dispense with the services of Vice-Chancellors without seeking any explanation for allegations levelled against them. In yet another state, six Vice-Chancellors were removed *en masse* well before they could complete their tenures.

News from Abroad

Grawemeyer Award in Education

The University of Louisville, USA, has announced the annual competition for a work of outstanding educational achievement presented in the recent past with potential for world-wide impact. The University is able to provide the award as a result of the creative generosity of Mr. H. Charles Grawemeyer. The ideas deemed most useful and well articulated may have an individual author or authors, or may be the product of an institution or agency, and the ideas may emanate from anywhere in the world. The award will be one hundred fifty thousand dollars ($150,000).

The University invites nominations from throughout the world by professional educators, educationa institutions and organizations, and editors and publishers of journals and books. Self nominations wil not be considered.

Nominations and requests for entry forms or further information should be sent to: University of Louisville, Grawemeyer Award in Education, School of Education University of Louisville, Louisville KY 40292, U.S.A.

All nominations and supporting materials from nominees must reach the University of Louisville by January 31, 1991.

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be Contacted
Oct. 2-4, 1990	5th Annual National Convention of Physics Teachers	Themes include Teaching aids in Physics education, Planning of an UG & PG Physics Laboratory Interactions between educational institutions & instrument makers etc.	Gandhi Memorial National College, Ambala Cantt.	Mr. M.K. Sharma, Convene 5th IAPT Convention, G.M.N. College, Ambala Cantt.-133001 (Haryana)
October 7-13, 1990	National Workshop on Radiochemistry and Applications of Radioisotopes	To popularise the study of nuclear sciences in colleges and universities and to highlight the applications of isotopes in research, industry, agriculture and health, etc.	Ravi Shankar University, Raipur.	Prof. S.G. Tandon, Director the Workshop & Head, Department of Chemistry, Ravi Shankar University, Raipur-492010.
December 1, 1990	National Symposium on Science and Technology in Ancient India.	Topics proposed to be discussed include Astronomy & Mathematics, Metallurgy, Medicine, Aeronautics, Engineering, Computer Science and Artificial Intelligence.	B.M. Birla Science Centre, Hyderabad	Dr. B.G. Sidharth, Director, B.M. Birla Science Centre, Adarsh Nagar, Hyderabad-500 463
July 21-26, 1991	Seventh International Meeting of University Administrators	Themes to be discussed are: (i) Standards of Professionalism in University Administrations; (ii) International Cooperation; and (iii) The Entrepreneurial University.	Conference of Registrars and Secretaries and Conference of University Administrators of the United Kingdom.	Dr. F.C. Verschoor, Chairm Organising Committee, Congress Bureau, University of Twente, P.O. Box 217, 7500 AE Enschede The Netherlands.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857–1970 and 1970–75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

RESEARCH IN PROGRESS

A list of Research Scholars registered for doctoral degrees in Indian Universities.

SOCIAL SCIENCES

Library & Information Science

1. Singh, Om Prakash. *Organization, working and use of libraries and information centres of BHEL organizations.* Vikram. Prof. S.S. Agrawal, School of Studies in Library and Information Science, Vikram University, Ujjain.

Psychology

1. Jain, Surekha. *Mantroucharan ka balakon kee mastishkiya kshamata dhyan kendritata evam nishpadan kshamata per prabhav: Ek prayogatmak adhyayan.* HS Gour. Dr. Y.S. Vagricha, Reader, Department of Psychology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Pancholi, Kavita. *Frustration: Its manifestations among youth.* HS Gour. Dr. (Mrs.) Nirmala Pande.

3. Saxena, Sapna. *An exploratory study of development of representation system in child.* HS Gour, Dr. Ishdutta Awasthi.

4. Tomar, Saroj. *A development study of cognitive style (FD-FI) and self monitoring among school going children.* HS Gour. Dr. P.K. Rai, Lecturer, Department of Psychology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

5. Trivedi, Archana. *A study of attitude of the parent of mentally retarded children towards mental retardation and their mentally retarded children.* HS Gour. Prof. Jai Prakash, Department of Psychology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

Sociology

1. Boaz, Arvind Anil. *Socio-economic upliftment of tribals through forestry in Madhya Pradesh with particular reference to Dhar District.* Devi Ahilya. Dr. W.S.K. Phillips, Principal, Indore School of Social Work, Indore.

2. Dixit, Manoj. *Indore Nagar kee yatayat samasya ka samaj shastriya adhyayan.* Devi Ahilya. Dr. T.R. Seth, Prof., Department of Sociology, P.M.B. Gujrati Arts and Law College, Indore.

3. George, V. J. *Trends and differentials of fertility change among tribals in Kerala.* Kerala. Dr. V. Gopala Krishnan Asari, Deputy Director, Population Research Centre, Department of Demography, University of Kerala, Kariavattom.

4. Jain, Anita. *Karamchari Rajya Beema Yojana ke antargat ashrit jan hit labh: samaj shastriya adhyayan: Jaipur shahar ke vishesh sandarbh mein.* Devi Ahilya. Dr. B.M. Munjal, Prof. and Head, Department of Sociology, Govt. Arts and Commerce College, Indore.

5. Jain, Sunita. *Indore shahar ke aushdhi nirman sansthanon ka vikas evam samajik parivartan.* Devi Ahilya. Dr. Uma Bajpai, Department of Sociology, Govt. Nutan Girls College, Indore.

6. Jain, Yogendra Kumar. *Indore Nagar ke asangathit kshetra*

mein sthiti ka samaj shastriya adhyayan: Indore Nagar kee mahilayon per adharit ek samajshastriya adhyayan. Devi Ahilya. Dr. Dinesh Kumar Gupta, Asstt. Prof., Govt. Post Graduate College, Dhar.

7. John, Arun Kumar Bede. *Hysterectomy—its socio-cultural aspects*. Devi Ahilya. Dr. W.S.K. Phillips, Principal, Indore School of Social Work, Indore.

8. Joseph, Kochumathew M. *A study on the changing morbidity patterns in Kerala*. Kerala. Dr. P.S. Nair, Additional Director, Population Research Centre, Department of Demography, University of Kerala, Kariavattom.

9. Joshi, Savita Shankarrao. *A sociological study of maid servants in Kolhapur City*. Shivaji. Dr. S.N. Pawar, Head, Department of Sociology, Shivaji University, Kolhapur.

10. Marulkar, Vijaychandra Sadashiv. *Miraj Medical Complex: A sociological study*. Shivaji. Dr. S.N. Pawar, Head, Department of Sociology, Shivaji University, Kolhapur.

11. Meenakumari, L. *Status of women and fertility in Kerala*. Kerala. Dr. P.S. Nair, Additional Director, Population Research Centre, Department of Demography, University of Kerala, Kariavattom.

12. Moli, G.K. *Hierarchical changes in the towns of India during 1971-81*. Kerala. Dr. K. Krishna Kumari, Lecturer, Department of Demography and Population Studies, University of Kerala, Kariavattom.

13. Pandit, Dilip Kumar. *Traditional health treatments among the tribals with special reference to the Bhil tribes of Jhabua District, M.P.* Devi Ahilya. Dr. Ramesh Chandekar, Prof., Department of Sociology, Indore Christian College, Indore.

14. Pothan, Varghese Kunnankeril. *A study of Indian immigrants in Canada with particular reference to Toronto*. Devi Ahilya. Dr. Rajendra Jain, Asstt. Prof., Department of Sociology, P.M.B. Gujrati Arts and Law College, Indore.

15. Rema, S. *Sub-national population projection*. Kerala. Dr. R. Rama Kumari, Prof., Department of Demography and Population Studies, University of Kerala, Kariavattom.

16. Santhosh, S. *Population ageing in Kerala*. Kerala. Dr. P.S. Nair, Additional Director, Population Research Centre, Department of Demography, University of Kerala, Kariavattom.

17. Sharma, Rajendra Kumar. *Audyogikaran mein udmiyata vikas karyakramon ka mulyankan : Indore sambhag ke sandarbh mein*. Devi Ahilya. Dr. R.K. Goyal, Asstt. Prof., Department of Sociology, Govt. Arts and Commerce College, Indore.

18. Shylaja, L. *Labour migration and its socio-economic and demographic impact in Kerala*. Kerala, Dr. P.S. Nair, Additional Director, Population Research Centre, Department of Démography, University of Kerala, Kariavattom.

19. Sukumari Amma, C.S. *Changing pattern of birth intervals and their determinants in Kerala*. Kerala. Dr. P.S. Nair, Additional Director, Population Research Centre, Department of Demography, University of Kerala, Kariavattom.

20. Tiwari, Ajay. *A socio-phychc study of married drug addicts and their family problems*. Devi Ahilya. Dr. (Smt.) S. Pothan, Asstt. Prof., Department of Sociology, Govt. New Girls Post-graduate College, Indore.

21. Tiwari, Hari Prakash. *Prodh shiksharthi evam rashtriya saksharata abhiyan per drishtipat : Vishesh sandarbh Indore shahar*. Dev Ahilya. Dr. M.Y. Khan, Head, Department of Sociology, Islami Karimia Degree College, Indore.

Political Science

1. Jamadar, Shikandar Appasabeh. *Rural and cooperative leadership in Maharashtra with special reference to Mr. Vasantdada Patil*. Shivaji. Dr. Gopal Guru, Department of Political Science, Shivaj University, Kolhapur.

Law

1. Mukthar, A. M. *Judicial trends in sentencing*. Kerala. Prof. M. Krishnan Nair, Centre for Advanced Legal Studies and Research, Punnen Road, Thiruvananthapuram.

2. Premkumaran Nair, S. V. *Matrimonial reliefs*. Kerala. Dr. N.K. Jayakumar, Department of Law, University of Kerala, Thiruvananthapuram.

Education

1. Chander Kanta. *Mastery learning strategy in science for children belonging to the slum areas of Chandigarh and its effectiveness wit respect to performance gain, time saved and attitude change*. Panjab. Dr. Anand Bhushan, Reader, Department of Education, Panjab University, Chandigarh.

2. Chander Kiran. *An evaluative study of adult education programmes in some selected districts of Panjab*. Panjab. Dr. (Mrs.) I.P. Sharma, Reader, Department of Education, Panjab University, Chandigarh.

3. Donald, Agbalizu Mac. *Leadership behaviour of the secondary school principals as perceived by self and teachers in the Union Territory, Delhi*. Panjab. Dr. (Mrs.) I.P. Sharma, Reader, Department of Education, Panjab University, Chandigarh.

4. Korah, Valsamma. *A study of the development of English curriculum in higher education in Kerala*. Kerala. Dr. Vasantha Ramkumar, Department of Education, University of Kerala, Trivandrum.

5. Rath, Niranjan Prasad. *Adult education training and productivity : A study of workers in Orissa*. Panjab. Dr. N.N. Pangotra, Director, Department of Adult and Continuing Education, Panjab University, Chandigarh.

6. Sala, Phra Dech. *A comparative study of the administrative problems of secondary schools of Thailand by types of management*. Panjab. Dr. Harish Sharma, Department of Education, Panja University, Chandigarh.

7. Sawhney, Puja. *The effectiveness of mastery learning strateg of teaching on acquisition and retention of algebraic concepts in high school students in relation to ability level, cognitive style and class organization*. Panjab. Dr. G.S. Sodhi, Reader, Department o Education, Panjab University, Chandigarh.

8. Sikand, Deepa. *The effectiveness of instruction in science at th secondary stage with and without computers*. Panjab. Dr. Anan

Bhushan, Reader, Department of Education, Panjab University, Chandigarh.

9. Thapar, Geetika. *The effectiveness of integrated intervention for enhancement of development of pre-schoolers in the Union Territory of Chandigarh*. Panjab. Dr. (Mrs.) Tehal Kohli, Reader, Department of Education, Panjab University, Chandigarh.

10. Trilochan Kaur. *Psycho-social correlates of attitudes of college going youth towards classical music*. Panjab. Dr. S.C. Gakhar. D.A.V. College of Education, Abohar.

11. Tsomo, Phurbu. *A study of religiosity and modernity of Tibetan students of secondary schools in Himachal Pradesh*. Panjab. Dr. (Mrs.) Asha Gupta, Department of Education, Panjab University, Chandigarh.

Commerce

1. Geetha, G. *Marketing of milk and dairy products in Trivandrum District with special reference to Milma*. Kerala. Dr. M.K. Ramachandran Nair, Amritha Bhavan, Thirumala, Trivandrum.

2. Kharche, Narayan Supada. *A study of small scale industries in Satara City with special reference to finance, investment and output aspects*. Shivaji. Dr. C.S. Shreshthi, Chh Shahu Central Institute of Business Education and Research, Kolhapur.

3. Zadbuke, Raju Pandharinath. *Performance appraisal of co-operative industrial estates in Western Maharashtra from 1980 to 1990*. Shivaji. Dr. V.V. Khanzode, Chh Shahu Central Institute of Business Education and Research, Kolhapur.

Home Science

1. Sharma, Karuna. *A study of buying habits and food adulteration awareness amongst consumers with special reference to house wives*. Devi Ahilya. Dr. (Smt.) Shail Bansal, Asstt. Prof., Govt. Girls Nutan College, Indore and Dr. (Smt.) S. Mahalati, Reader, School of Economics, Devi Ahilya Vishwavidyalaya, Indore.

HUMANITIES

Philosophy

1. Nagamony, P. S. *Social philosophy of Vivekananda : A study*. Kerala. Dr. D. Nesy, Lecturer, Department of Philosophy, University of Kerala, Kariavattom.

2. Sangeetha, S. A. *Concept of consciousness in Bhagavat Gita : A study*. Kerala. Dr. D. Nesy, Lecturer, Department of Philosophy, University of Kerala, Kariavattom.

Fine Arts

Drawing & Painting

1. Dabral, Jyotsna. *Bhartiya chitrakala aur kavya ke paripekshya mein Mahadevi Verma ke kavya bimbon aur chitron ka adhyayan*. Vikram. Dr. R.C. Bhavsar, Prof., 110, Mangal Colony, Ujjain.

2. Kalyani, S. *Development of Veena playing through the ages*. Kerala. Dr. (Mrs.) S. Bhagya Lekshmi, Sub Editor, State Institute of Children's Literature, Govt. Sanskrit College Campus, Trivandrum.

3. Sreelatha, G. *Contributions of K.C. Kesava Pillai to Karanatic music*. Kerala. Dr. (Mrs.) S. Bhagya Lekshmi, Sub Editor, State Institute of Children's Literature, Govt. Sanskrit College Campus, Trivandrum.

4. Usharani, G. S. *Compositions of T Lakshmana Pillai*. Kerala. Dr. (Mrs.) K. Omana Kutty, Medayil, Thycaud, Trivandrum.

Language & Literature

Hindi

1. Bidula Dev. *Mahadevi ke sahitya mein vyakti aur samajik chetana ka swaroop*. HS Gour. Dr. Bal Bhadra Tiwari, Reader, Department of Hindi, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Choudhary, Veena. *1950 ke pashchat ka Hindi Katha sahitya aur Vishnu Prabhakar*. Vikram. Dr. Harimohan Budholiya, Asstt. Prof., Department of Hindi, Vikram University, Ujjain.

3. Chutail, Premlata. *Nirmal Verma kee astitvavadi chetana*. Vikram. Dr. Shakuntala Singh, Prof., Department of Hindi, Govt. Girls Gollege, Ujjain.

4. Jain, Anju. *Upanyaskar Acharya Chatursen Shastri kee samajik chetana*. Vikram. Dr. Madhusudan Shukal Sudesh, Prof., Department of Hindi, Govt. College, Dhar.

5. Joshi, Pramod Kumar. *Swatantrayottar Hindi sahitya kee dishayen aur Shri Bhagant Verma*. Vikram. Dr. Harimohan Budholiya, Asstt. Prof., Department of Hindi, Vikram University, Ujjain.

6. Khare, Uma. *Amritlal Nagar ke upanyason mein nari patra : Ek vivechan*. Devi Ahilya. Prof. G.D. Tripathi, Prof. and Head, Govt. Arts and Commerce College, Indore.

7. Malviya, Pushpa. *Hindi kee janvadi kavya dhara : Udbhav aur vikas*. Devi Ahilya. Dr. P.D. Sharma, Research Centre, Devi Ahilya Vishwavidyalaya, Indore.

8. Mishra, Kanti. *Ram Charit Manas ke lokottar prasangon ka adhyayan*. Devi Ahilya. Dr. B.P. Birmal, Prof., Department of Hindi, Govt. Girls Post-graduate College, Indore.

9. Munshi, Kritibala. *Adhunik Hindi upanyas : Parampara aur prayog, 1950 se 1985 tak*. Vikram. Dr. (Mrs.) Urmi Sharma, Asstt. Prof., G-2127, Jyotinagar Road, Ujjain.

10. Ojha, Prasanna Kumar. *Rajkamal Chaudhary ka kavya evam chintan*. Devi Ahilya. Dr. (Smt.) C.K. Agnihotri, Asstt. Prof., Govt. Girls Post-graduate College, Indore.

11. Paode, Sushma H. *Hindi kee pramukh mahila upanyaskaron krit pramukh upanyason ke mukhya patron ka manovaigyanik vishleshan*. Devi Ahilya. Dr. (Smt.) Sudesh Chopra, Asstt. Prof., Department of Hindi, Indore Christian College, Indore.

12. Patang, Shivsingh. *Adhunik Hindi kavita mein Madhya Pradesh ke kaviyon ka yogdan*. Vikram. Dr. Chandrakant Devtale, Prof., Govt. Kalidas Girls College, Ujjain.

13. Sharma, Shailendra Kumar. *Shabda shakti sambandhi Bhartiya aur pashchatya avadharna aur Hindi kavya shastra*. Vikram. Dr. Rammurti Tripathi, 2, State Bank Colony, Devas Road, Ujjain.

14. Singh, Sunita. *Premchandottar Hindi katha sahitya ke pramukh*

vyang kathakar. Vikram. Dr. Harimohan Budholiya, Asstt. Prof., Department of Hindi, Vikram University, Ujjain.

15. Upadhyaya, Pramod. *Hindi ke jasoosi upanyason mein manovaigyanikta va samajikta*. Devi Ahilya. Dr. P.D. Sharma, Principal and Prof. (Retd.), Department of Hindi, Devi Ahilya, Vishwavidyalaya, Indore.

16. Verma, Radhesyam. *Balkrishna Sharma 'Navin' ka vyaktitva aur unkee kavya bhasha ka adhyayan*. Vikram. Dr. J.P. Srivastava, 515, Nutan Nagar, Municipal Colony, Khargaon.

Malayalam

1. Beenakumari C. *The humanistic elements in the works of Lalithambika Antharjanam*. Kerala. Dr. K. Retnamma Nandanam, Pettah, Trivandrum.

2. Kumari Jothy, G. S. *A discourse analysis of the essays of Joseph Muntasseri and Kuttikrishna Marar*. Kerala. Dr. S. Radhakrishnan Nair, Research Scientist-A, Department of Linguistics, University of Kerala, Kariavattom.

3. Mayadevi, P. G. *Evolution of Malayalam grammar through Raanacaritam, Kannassaraamaayanam, Krishnagaatha and Adhyatma Raamaayanam*. Kerala. Dr. E.V.N. Namboodiri, Prof., Department of Linguistics, University of Kerala, Kariavattom.

4. Ranjit, S. *Speech variation and social stratification in Cochin*. Kerala. Dr. N. Rajendran, Reader, Department of Linguistics, University of Kerala, Kariavattom.

5. Sunilkumar G. *Speech of Mala Mutians : A socio linguistic study*. Kerala. Dr. N. Rajendran, Reader, Department of Linguistics, University of Kerala, Kariavattom.

Geography

1. Hande, Bhiva Ramu. *Tourism in Sindhudurg and Ratnagiri Districts of Maharashtra : A geographical analysis*. Shivaji. Dr. S.B. Deshmukh, Department of Geography, Shivaji University, Kolhapur.

History

1. Bhatt, Pankaj. *Malwa ke Parmaron kee rajsva vyavastha*. Devi Ahilya. Dr. (Smt.) Kalpana Ganguli, Principal, Sugnidevi Girls College, Indore.

2. David, Amit. *Justice and equity in Mughal taxation, 1556-1707*. Devi Ahilya. Dr. Sushil Kumar, Prof. and Head, Department of History, Indore Christian College, Indore.

3. Dhariwal, Meenaxi. *Powerloom industry in West Madhya Pradesh*. Devi Ahilya. Dr. (Smt.) Nirupama Nagar, Asstt. Prof., P.M.B. Gujarati Arts and Law College, Indore.

4. Goyal, Manik Lal. *A study of farm income and employment in South West M.P.* Devi Ahilya. Dr. V.D. Nagar, Prof. and Head (Retd.), School of Economics, Devi Ahilya Vishwavidyalaya, Indore.

5. Pushpad, Aruna. *Madhya Pradesh mein lok vyaya sector va kshetriya asantulanon ke vishesh sandarbh mein*. Devi Ahilya. Dr. S.S. Pawar, Coordinator, Minority Cell, Devi Ahilya Vishwavidyalaya, Indore.

6. Sathyaraj, A. *The role of residents in the growth of British power in Travancore, 1800-1819*. Kerala. Dr. R.N. Yesudas. Lacturer, Institute of Correspondence Courses, University of Kerala, Kariavattom.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities.

SOCIAL SCIENCES

Library & Information Science

1. Savanur, Sathyabodh Krishnarao. *Reviewing of library science books : A content analysis approach*. Karnatak. Dr. S.R. Ijari, Reader, Department of Library and Information Science, Karnatak University, Dharwad.

Psychology

1. Choudhary, Rashmi. *Effects of repression sensitization tendency and need for achievement upon pattern of reaction to frustration*. Rajasthan. Dr. (Mrs.) Manju Mehta, Asstt. Prof., Department of Psychology, University of Rajasthan, Jaipur.

2. Dasgupta, Sadhan. *A study of anxiety*. Calcutta.

3. Gupta, Nand Lal. *Relationship of intelligence, personality, sex and sexrole orientation to moral judgement among college and university students*. HP.

4. Javed Alam. *A study of dependence proneness and feelings of security, insecurity among Hindu and Muslim youths in relation to prolonged depriviation*. AMU. Dr. Saeeduzzaffar, Reader, Department of Psychology, Aligarh Muslim University, Aligarh.

5. Khan, Kunwar Sajid Ali. *A study of adjustment, anxiety and level of aspiration among criminals and psychosomatic patients*. AMU. Dr. M. Qasim Husain.

6. Pareek, Durga Lal. *A comparative study of the self concept, personality traits and aspirations of the adolescents*. Rajasthan. Dr. R.R. Singh, Vidya Bhawan, G.S. Teachers College, Udaipur.

7. Sehgal, Renu. *Problem solving as a function of neuroticism and fear of success in university and working women*. HP.

Sociology

1. Chakraborty, Kumaresh. *Industrialisation and its impact on the tribal peoples : A case study of Durgapur Steel Plant vis-a-vis tribal peoples in the area*. Calcutta.

2. Damle, Chandrashekhar B. *Land reform and changing agrarian relations in Dakshina Kannada District, Karnataka*. Poona. Dr. D.N. Dhanagare, Department of Sociology, University of Poona, Pune.

3. Kushwaha, Urmila. *Audyogik mahila shramikon ka samaj vaigyanik vishleshan : Kanpur ke vibhinna udyogon mein shramrat mahilayon per adharit*. BHU. Prof. H.C. Srivastava.

4. Mashhood Ahmad. *Existing pattern of Muslim society in Madhubani*. AMU. Dr. Jamil Farooqi, Reader, Department of Sociology, Aligarh Muslim University, Aligarh.

5. Muniza Rafiq. *Socio-legal status of Muslim women*. BHU. Dr. M.P. Singh and Prof. H.C. Srivastava.

6. Rajput, Amarsingh. *Economics of improved farming technology with special reference to watershed development programmes in Malwa Plateau*. Devi Ahilya.

7. Raveendran, N. *Social background of trade union movement*. Kerala. Dr. G. Ramachandra Raj, Prof., Department of Sociology, University of Kerala, Kariavattom.

8. Sen, Pritha. *Problems of industrial management*. Bangalore. Dr. C. Rajagopalan, Prof. and Head, Department of Sociology, Jnana Bharathi Campus, Bangalore University, Bangalore.

9. Singhdev, Ramchander. *Socio-economic history and administrative set up of Korea State*. Ghasidas. Dr. (Kum.) Shachi Jha, Govt. Girls College, Bilaspur.

10. Yadav, Nagendra. *Rojgar karyakram mein grameen yuvakon kee sahabhagita : Varanasi Jile ke do vikas khandon per adharit Trisem Yojana ka ek samajvaigyanik adhyayan*. BHU. Dr. O.P. Gupta, Reader, Department of Sociology, Banaras Hindu University, Varanasi.

Social Anthropology

1. Borah, Jogeswar. *Folk elements in Ramasarasvati*. Gauhati. Dr. Nabin Chandra Sarma, Reader, Department of Folklore Research, Gauhati University, Guwahati.

2. Chakraborty, Manoj Kumar. *The elephant in the life and lore of Assam and the adjoining areas*. Gauhati. Dr. Birendranath Datta, Prof. and Head, Department of Folklore Research, Gauhati University, Guwahati.

Social Work

1. Joshi, Sandhya. *Social intervention for health and growth monitoring of under five slum children : A field experiment at Vadodara*. Baroda.

2. Vasanthy Vijay. *An approach to therapeutic communication in Hindu families with psychosocial problems in Bangalore City*. Bangalore. Dr. H.M. Marulasiddaiah, Prof. and Chairman, Department of Social Work, Prasanna Kumar Block, Palace Road, Bangalore.

Political Science

1. Bhargava, Deepika. *Indo-China as a factor in Thai foreign policy, 1975-1985*. JNU. Prof. P.K. Das, Centre for South, Central and Southeast Asian and South West Pacific Studies, Jawaharlal Nehru University, New Delhi.

2. De, Soumitra. *Development on nationalist thought in Bengal : An inquiry into the dynamics of the patterns of thought, 1800-1885*. NBU.

3. Dhakal, Suman. *Political development in Sikkim during the Chogyal regime*. BHU. Dr. R.R. Jha, Reader, Department of Political Science, Banaras Hindu University, Varanasi.

4. Jagadale, Atmaram Bajirao. *Indo-Soviet relations : Mrs. Indira Gandhi era, 1966-77*. Shivaji. Dr. K.K. Kavlekar, Head, Department of Political Science, Shivaji University, Kolhapur.

5. Naqvi, Syeda Sabina Nazli. *The study of the politics of the partition, 1937-1947*. AMU. Prof. A.P. Sharma, Department of Political Science, Aligarh Muslim University, Aligarh.

6. Noor Ahmad Baba. *Organization of Islamic Conference : Objectives and structure*. JNU. Prof. A.H.H. Abidi, Centre for West Asian and African Studies, Jawaharlal Nehru University, New Delhi.

7. Rai, Jitendra. *Uttar Pradesh Vidhan Sabha mein virodhi dalon kee bhumika, 1977 se 1986 tak*. BHU. Prof. P.D. Kaushik, Department of Political Science, Banaras Hindu University, Varanasi.

8. Ramaswamy Sastry, K. *Factors affecting rural development participation with special reference to IRDP and NREP*. Osmania.

9. Shekhawat, Lokesh Kumar. *The urban local political elite : A comparative study of two Indian cities*. Rajasthan. Prof. D.B. Mathur, Department of Political Science, University of Rajasthan, Jaipur.

10. Singh, Rekha. *Soviet policy towards regional cooperation in Southeast Asia : A case study of ASEAN, 1967-85*. JNU. Prof. Zafar Imam, Centre for Soviet and East European Studies, Jawaharlal Nehru University, New Delhi.

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Advt. No. A&E-II/8/90

Applications are invited for the following posts:

1. **Archival Superintendent** – one. **EQ** (a) Atleast Second Class Master's Degree in History with an optional paper in Modern Indian History of a recognised University or equivalent and training in Archival Science; (b) Three years experience of research in Modern Indian History/teaching of Modern Indian History in a recognised college/work in an Archival Office. DQ (a) Knowledge of Archival Science; (b) Knowledge of typography and proof reading.

2. **Preservation Assistant** – one (reserved for SC interchangeable with ST): EQ. Matriculation with Science as one of the subject and training in Care and Conservation of Books, Manuscripts and other Archival Materials.

3. **Technical Assistant in Environmental Sciences** – one: EQ. B.Sc. Degree in Geology. DQ. Atleast two years experience in a Geological/Geochemical laboratory particularly familiarisation with analytical techniques viz. X-ray diffractometry. Atomic Absorption Spectrophotometry and sedimentary petrology. **Job Description:** To assist faculty and research students in the analysis of samples, maintenance, upkeep of instruments facilities and general supervision, care of laboratories and assistance in purchase of instruments of use in the laboratory.

4. **Technical Assistant in Biotechnology** – one (reserved for SC): EQ. B.Sc. in Physics or Chemistry or related subject with three years experience. OR M.Sc. in Physics or Chemistry or related subject with two years experience.

5. **Statistical Assistant for SC/ST Cell** – one: **EQ.** (a) A good Master's degree in Statistics/Economics/Mathematics; (b) Adequate experience in collecting and processing of statistical data through E.D.P. techniques, monitoring progress of development activities, compilation of statistical returns and plan proposals etc. DQ. Knowledge of Computer Programming.

6. **Technical Assistants for Registrar's Office** – two (one reserved for SC): **EQ.** (a) B.Sc. with Mathematics as one of the subjects and minimum 55% marks in aggregate; (b) five years experience of working on HCL, WIPRO, Word Processor and PCs; (c) Thorough knowledge of wordstar, D-base III plus MS DOS and ability to handle computer system with terminals.

7. **Xerox Operator for Library** – one (reserved for SC): **EQ.** (a) Matriculation with Trade Certificate; (b) Two years experience as Xerox Operator.

8. **Technical Assistant in Regional Development** – one (reserved for SC): EQ. (a) Second Class Bachelor's degree in Statistics/Mathematics/Economics; (b) Familiarity with D-base III Lotus 1,2,3 and Word Star Package; (c) Some knowledge of FORTRAN language; (d) Familiarity with operating systems such as CP/M and MS-DOS. **Job Requirements:** (a) to operate the HCL work Horse-II System; (b) to guide students in data processing operations; (c) to assist teachers/students in using the PCs for Word Processing purposes.

9. **Statistical Assistant in Community Health** – one **EQ.** (a) Second Class B.A./B.Sc.; (b) atleast three years experience in health projects with data collection, record keeping and data analysis.

10. Project Officer in Adult Continuing Education & Extn. Unit. – one (reserved for ST): **EQ.** (a) Good academic record in the subject of Adult/Continuing/Community/Extension Educational/Community Development from a recognised Indian University or an equivalent degre from a foreign University. (b) M.Phil or Ph.D. in a subject related to adult learning or Ph.D. in a subject under Social Science or Education or Evidence of published research learning materials and learning resources on areas listed in (a) above or published research in any of the relevant area/areas indicated above. **OR** (a) Good academic record in Social Science/Social Work/Humanities/Education/Science/Home Science. (b) Post Master's Diploma in Adult and Continuing Education from a recognised Indian University or an equivalent diploma/degree from a foreign University. (c) M.Phil or Ph.D. in subject related to adult learning or a Ph.D. in a subject under Social Sciences or Education or Evidence of published learning materials and learning resources or areas listed in adult/continuing/community/extension/education/community development or published research in any of these area/areas. **DQ.** Two years experience of field work on a subject having bearing on Adult/Continuing/Extension/Community/Non-Formal Education/Community Development. **OR** Two years teaching experience in the subject of Adult and Continuing Education at graduate/post-graduate levels.

SCALE OF PAY:

For Post No. 1	: Rs. 2000-3500.
For Post No. 3,4,5,6,8&9	: Rs. 1400-2300.
For Post No. 2	: Rs. 950-1500.
For Post No. 7	: Rs. 975-1540.
For Post No. 10	: Rs. 2200-4000.

Any of the qualifications/experience may be relaxed at the discretion of the University. It will also be open to the University to consider the names of suitable candidates who may not have applied.

Applications forms may be obtained free of cost in person or by sending a self-addressed envelope (23 cm × 10 cm) duly stamped to the Deputy Registrar (A&E-II), Room No. 204-B, Administrative Block, Jawaharlal Nehru University, New Delhi-67. The applications in prescribed form complete in all respect duly forwarded by the competent authority (for those in service) should reach this University latest by **31.8.1990**

Abbreviations:
EQ = Essential Qualifications.
DQ = Desirable Qualifications.

JAWAHARLAL NEHRU UNIVERSITY

NEW DELHI-110067

Advt. No. A&E-II/6/90

JNU has openings for the following positions in the areas of study as indicated against each:

1. Assistant Professor in International Law
2. Assistant Professor in Social Science (Community Health)
3. Assistant Professor in Japanese (Leave vacancy)
4. Research Officer in Educational Records & Research Unit – (Reserved for SC interchangeable with ST)

ESSENTIAL QUALIFICATIONS:

For Post No. 1: LLB or LLM with atleast 55% marks or its equivalent grade and good academic record. **For Post No. 2&3:** Master' degree in the relevant subject with atleast 55% marks or its equivalent grade and good academic record. **For Post No. 4:** (a) A Doctor's degree or research work of an equally high standard; and (b) Good academic record with atleast second class (C in the seven point scale) Master's degree in History from an Indian University or an equivalent degree from a foreign University.

DESIRABLE QUALIFICATIONS:

For Post No. 1: (a) Doctorate degree or research work in International Law of an equally high standard; (b) Teaching or research experience in International Space Law/International Environmental Law/Law of the Sea. **For Post No. 2:** M.Phil/Ph.D. degree (Health Economic, Political Economy of Health, Medical Sociology, Historical and Social Demography. **OR** Research work of an equally high standard in the above areas with a very good M.A. in Social Science disciplines. **For Post No. 3:** (a) Training in Japan in the field of language/literature; (b) Some teaching experience preferably at degree level; (c) familiarity with the latest teaching methods. **For Post No. 4:** (a) Some experience of editing documents for publications; (b) Published work in the area of Modern Indian History.

Scale of Pay: Rs. 2200-4000 plus usual allowances.

15% of 7½% of the posts of Assistant Professors are reserved for SC and ST candidates respectively. Any of the qualifications/experience may be relaxed at the discretion of the University. It will be open to the University to consider the names of suitable candidates who may not have applied.

Application forms may be obtained free of cost in person or by sending a self-addressed envelope (23 × 10 cm) duly stamped to the Deputy Registrar (Academic & Establishment-II), Room No. 204-B, Administrative Block, Jawaharlal Nehru University, New Delhi-110067. The applications in prescribed form complete in all respect duly forwarded by the competent authority (for those in service) should reach this University latest by **30th August, 1990.**

INDIAN COUNCIL OF PHILOSOPHICAL RESEARCH

Applications are invited for temporary appointment to the post of **DIRECTOR (PUBLICATION AND RESEARCH)** in the pay scale of Rs. 3700-125-4700-150-5000 with usual allowances. Candidates within the age limit of 50 years (relaxable by 5 years for employees of Central and State Governments, Universities, Autonomous Bodies) should have good academic record with a doctorate degree in Philosophy or equivalent published work and active engagement in research or innovation in teaching methods or production of teaching material and at least 5 years experience of teaching or research. Preference will be given to candidates having practical experience of publication and production work. Applications with complete bio-data should reach MEMBER-SECRETARY, INDIAN COUNCIL OF PHILOSOPHICAL RESEARCH, RAJENDRA BHAVAN, 210 DEEN DAYAL UPADHYAYA MARG, NEW DELHI-110 002, not later than **15TH SEPTEMBER, 1990.**

davp 936(2)90

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

PO: IIT POWAI, BOMBAY 400 076
ADVERTISEMENT NO. E-40/90-91

EXECUTIVE ENGINEER (ESTATE) IN CPWD SCALE

Applications are invited from the citizens of India for the above permanent post in the prescribed form obtainable free of charge from the Registrar, IIT Powai, Bombay 400 076, on request accompanied by self-addressed envelope (25cm × 10cm). Persons employed in Government/Semi-Government Organizations or Educational Institutions should apply through proper channel. The post carries allowances such as DA, CCA, HRA etc. as per rules of the Institute which at present corresponds to those admissible to the Central Government employees stationed at Bombay. **Depending on qualifications and experience, a higher starting pay may be offered.** Candidates belonging to SC/ST categories will be given preference. Candidates called for interview will be paid 1st class train fare from the place of their residence and back by the shortest route.

EXECUTIVE ENGINEER (ESTATE) : (one post)

Revised scale of pay : Rs. 3000-100-3500-125-4500.

Total emoluments on the minimum of the scale is Rs. 4240/- per month (excluding HRA).

JOB DESCRIPTION:

Subject to the immediate control of the Superintending Engineer, the appointee will be required mainly to initiate and execute civil maintenance including, building, roads, sewage, etc. He will be responsible for the sanitation and beautification of the Campus area including horticulture. The appointee will be also required to look after allotment of quarters, eviction proceedings under PP Act, 1972, land and property and all legal work connected with land, buildings and estate and functions as Estate Officer.

QUALIFICATIONS:

A good Bachelor's degree in Engineering, preferably in Civil Engineering or Technology of a recognised University/Institute.

EXPERIENCE:

A minimum of 10 years of experience in property maintenance and management in Army, Navy, Air-Force establishments; or in other Government or Public Sector establishment, large Educational or Research Institute or in a big Commercial Organization. Out of this, at least 5 years should be in a responsible position. The candidates should have first-hand knowledge of dealing with cases under P.P. Act, 1972. In case of necessity the incumbent may be required to hold additional or exclusive charge of any other area.

DESIRABLE:

1. Experience in application of Computers and Management information systems.
2. A degree in Law.

AGE LIMIT: Preferably below 40 years.

The appointee will be required to stay in the Campus on payment of licence fee and other charges as per rules.

Completed applications should reach the Registrar, Indian Institute of Technology, Powai, Bombay 400 076 through proper channel by the **10th September, 1990.**

REGISTRAR

PANJAB UNIVERSITY

CHANDIGARH

Advertisement No. 8/90

Applications are invited for the post of Associate Dean, College Development Council, so as to reach the Registrar, Panjab University, Chandigarh by **31.8.1990.** The post carries the pay-scale of Rs. 3700-125-4950-150-5700 (Revised).

Qualifications:

1. Second class (a) M.A. or M.Sc. degree or (b) an equivalent degree.

   Provided that the condition of second class may be relaxed in the case of persons already approved as Lecturers in the colleges affiliated to this University.

   and

2. Atleast ten years' experience in affiliated colleges/teaching departments of this University or other institutions of a similar standing.

   Provided that in the case of persons holding Ph.D. degree, the period of teaching experience required may be relaxed to 5 years.

Desirable:

(i) Administrative experience at College/University Department level.

(ii) Intimate knowledge of the functioning of affiliated Colleges.

NOTE:

1. The appointment will be on probation for one year in the first instance. The probationary period can be extended for another year.
2. The age of retirement is 60 years.
3. It is not obligatory on the part of the University to call all qualified persons for interview.
4. The University may, if it so chooses, appoint a person on deputation.
5. The Vice-Chancellor could place before the Selection Committee names of suitable persons for its consideration alongwith applications received in response to the advertisement.
6. On the recommendations of the Selection Committee, the appointing authority can relax any qualifications in case of those considered by it to be eminent educationists/otherwise suitable.
7. The post is non-vacation academic positions.
8. The University may also prepare a panel in order of merit upto 3 persons which shall be valid for a period of six months.

INDIAN INSTITUTE OF ADVANCED STUDY
SHIMLA

Advertisement No. 3/90

In its **Silver Jubilee Year,** the Institute offers **special discount** to individuals as well as institutions on its **publications** written or edited by eminent scholars in **Art, Aesthetics, Philosophy, Religion, Literature, Linguistics, Anthropology, Sociology, Psychology, Law, Political Science, History, Education and Science & Technology.**

For detail, Please write to: ASSISTANT PUBLICATION OFFICER, INDIAN INSTITUTE OF ADVANCED STUDY, RASHTRAPATI NIVAS, SHIMLA 171 005, (Himachal Pradesh.)

davp 90/363

Persons already in service must route their applications through proper channel. They may, however, send an advance copy of their application, on the prescribed proforma, direct to the University. They will be allowed to present themselves, for interview only on the production of 'No Objection Certificate' from their employers. In-complete forms will not be considered. Forms received after the due date are liable to be rejected unless the Vice-Chancellor condones the delay by a special order. Attested copies of certificates in support of qualifications for Matriculation/School Leaving, Graduation and Post-Graduation examinations be attached to the application. Canvassing in any form will disqualify the candidate.

Application form can be obtained from the Cashier, Panjab University, personally. The cost of application form (inclusive of the application fee) is Rs. 15/-. The priced form may also be had by making a written request to the Deputy Registrar (Establishment), Panjab University, Chandigarh, accompanied by a self-addressed stamped envelope fo 23 × 10 cms. and a postal order of Rs. 15/- drawn in favour of the Registrar, Panjab University, Chandigarh-160014.

Ed.CIL

EDUCATIONAL CONSULTANTS INDIA LTD.

(A Government of India Enterprise)

The World Bank has agreed to provide financial assistance for upgrading Technician (Polytechnic) Education in various States through quality improvement of the teaching-learning processes, enhancement of the efficiency of management, introduction of courses in new and emerging technology areas, and increasing educational opportunities for women. The duration of the First Phase of the Project is 1990-97.

On behalf of the Department of Education (GOI), the Project will be managed primarily by an autonomous National Project Implementation Unit (NPIU) located in EdCIL.

It is proposed to fill-up the following posts in the NPIU on deputation/contract basis.

1. **Central Project Advisor** – one post – Rs. 6300-7300
   To be responsible for the overall management of the Project, to provide academic leadership and to administer the NPIU.
2. **Central Project Coordinator (Academic)** – one post – Rs. 4500-7300
   To facilitate, coordinate and monitor all academic aspects of the Project.
3. **Central Project Coordinator (Physical Resources)** – one post – Rs. 4500-7300.
   To facilitate, coordinate and monitor all physical resource aspects of the Project.
4. Deputy Project Coordinators (Academic) – two posts – Rs. 3700-5700 & **Deputy Project Coordinators (Physical Resources)** – two posts – Rs. 3700-5700.
   To assist the respective CPCs in the discharge of their functions by carrying out duties as assigned from time to time.

Persons appointed on the above posts would be required to travel frequently to the various States and polytechnics.

Interested persons with good academic background and high quality experience in one or more aspects of technician/technical education such as teaching, training, research, educational consultancy, and educational/research project planning, implementation, coordination and management may send their detailed bio-data (indicating clearly in the forwarding letter the post(s) applied for) through proper channel to: The Joint Educational Advisor (Technical) & National Project Director (World Bank Project), Dept. of Education, Shastri Bhawan, New Delhi-110001 so as to reach on or before **August 31, 1990.** An advance copy of bio-data can also be sent.

RABINDRA BHARATI UNIVERSITY

56A, B.T. ROAD, CALCUTTA-50

Employment Notification No. RB 64/90
Dated: 26.7.90

Applications are invited for appointment to the following Posts:

(A) **Professor of English** (one post)

Qualifications: (a) Consistently good academic record with first or second class Honours Degree and first or second class Master's (c in the 7 point scale) Degree in the Subject. (b) A Doctorate Degree of an Indian or foreign University. (c) An eminent Scholar with published work of high standard and actively engaged in research. (d) About ten years' experience of teaching and/or research. (e) Experience of guiding research at doctoral level.

OR

An outstanding Scholar with established reputation who has made significant contribution to knowledge.

(B) **Readers in the following Departments: (1) History, (2) Philosophy, (3) B.Ed., (4) BLIS, (5) Rabindra Sangeet (one post in each Department):**

Qualifications for (1) & (2) : (a) Consistently good academic record with first or second class Honours degree in the subject followed by first or second class (c in the 7 point scale) Master's degree in the subject. (b) A Doctoral Degree of an Indian or foreign University or equivalent published work. (c) Evidence or being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) Production of teaching materials. (d) About five years' experience of teaching and/or research provided that at least three of these years were as Lecturer or in an equivalent position.

This condition may be relaxed in case of candidates with outstanding record of teaching/research.

For (3) : (a) Second class M.A. or M.Sc. degree in a non-laboratory-based subject taught in Schools with either a B.T./B.Ed. degree or an M.A. or M.Sc. degree in Education; or second class M.A. or M.Sc. degree in Education with a B.T./B.Ed. degree. (b) Research experience in the relevant area at the doctoral level; or equivalent published works; (c) At least five years' teaching experience in the B.Ed. or equivalent/allied course.

For (4): **Essential:** (a) An Honours degree followed by at least 55% in the Master's degree in Library & Information Science (M.Lib/MLIS). (b) At least five years' teaching and/or professional experience in a recognised Institution or Library as a Librarian. **Desirable:** (i) Research experience at the doctoral level; or evidence of being actively engaged in research work in Library Science subjects; or equivalent published works. (ii) INSDOC and/or DRTC.

For (6) **Essential:** (a) Good academic background with sound knowledge of Tagore's life, Literature and Music. (b) Capable of teaching Post-graduage classes and guiding research in Histrionic Art. (c) Teaching experience in the subject upto the Post-Graduate level. **Desirable:** (a) A Doctorate Degree in the subject. (b) Reputation as a performer.

OR

A traditional or a Professional Artiste with highly commendable Professional achievement in the subject concerned.

(C) Lecturers in: (1) Philosophy – One Post (2) Sanskrit – Two Posts with specialization in the Vedic & Language and Literature (3) Vocal Music – One Post with a specialization in Bengali Song. (4) Rabindra Sangeet – One Post. (5) Manipuri Dance – One Post. (6) Drama – One Post.

Qualifications for (1) & (2) : (a) A Doctor's Degree or research work of an equally high standard and (b) consistently good academic record with at least second class (c in the 7 point Scale) Master's degree in the relevant subject from an Indian University or an equivalent degree from a foreign University.

Having regard to the need for developing inter-disciplinary Programmes, the degrees in (1) & (2) above may be in the relevant subjects):

Provided that if the Selection Committee is of the view that the research work of a candidate as evident either from his/her thesis or from his/her published work is of very high standard, it may relax any of the qualifications prescribed in (B) above.

Povided further that if a candidate possessing a Doctor's degree or equivalent research work is not available or is not considered suitable, a person possessing a good academic record (weightage being given to M.Phil. or equivalent degree or research work of quality) may be appointed provided he/she has done research work for at least two years on the condition that he/she will have to obtain a Doctor's degree or give evidence of research of high atandard within eight years of his/her appointment, failing which he/she will not be able to earn future increment until he/she fulfils these requirements.

For (3), (4), (5) & (6): (a) A good academic record with at least second class (c in the seven point scale) Master's degree or an equivalent/higher degree or diploma in the relevant subject/area recognised by the University. (b) Two years' research or professional experience or evidence of creative work and achievement in the field of his/her specialization or a combined research and professional experience of three years in the field of an artiste of outstanding talent.

Note: (i) In case of Lecturer in Rabindra Sangeet a sound knowledge of Tagore's Life, Literature and Music is also essential. (ii) In case of Lecturer in Drama sound knowledge of stage lighting and electricity is also essential

OR

A traditional or a professional Artiste with highly commendable professional achievement in the subject concerned.

(D) Accompanists in Dance: Two Posts (one for Pung-Drum (Khol) and other for Sarod/ Sitar).

Qualifications: Essential: A good Performer with proficiency in the instruments above. **Desirable:** Ability to give musical accompaniment to Manipuri Dance.

(E) Junior Research Fellows/Project Assistant for the School of Vedic Studies: 4 Posts.

Qualifications: M.A. in Sanskrit/allied subjects preferably with specialization in the Vedic language and literature qualification in N.E.T. will be required for J.R.F., Non-NET candidates obtaining 55% marks in M.A. are eligible for the post of Project Assistants as per UGC rules.

Selection for the Post of Professor of English need not necessarily be confined to the applicants only.

Other things remaining equal, preference will be given to the candidates belonging to Scheduled Castes/Tribes.

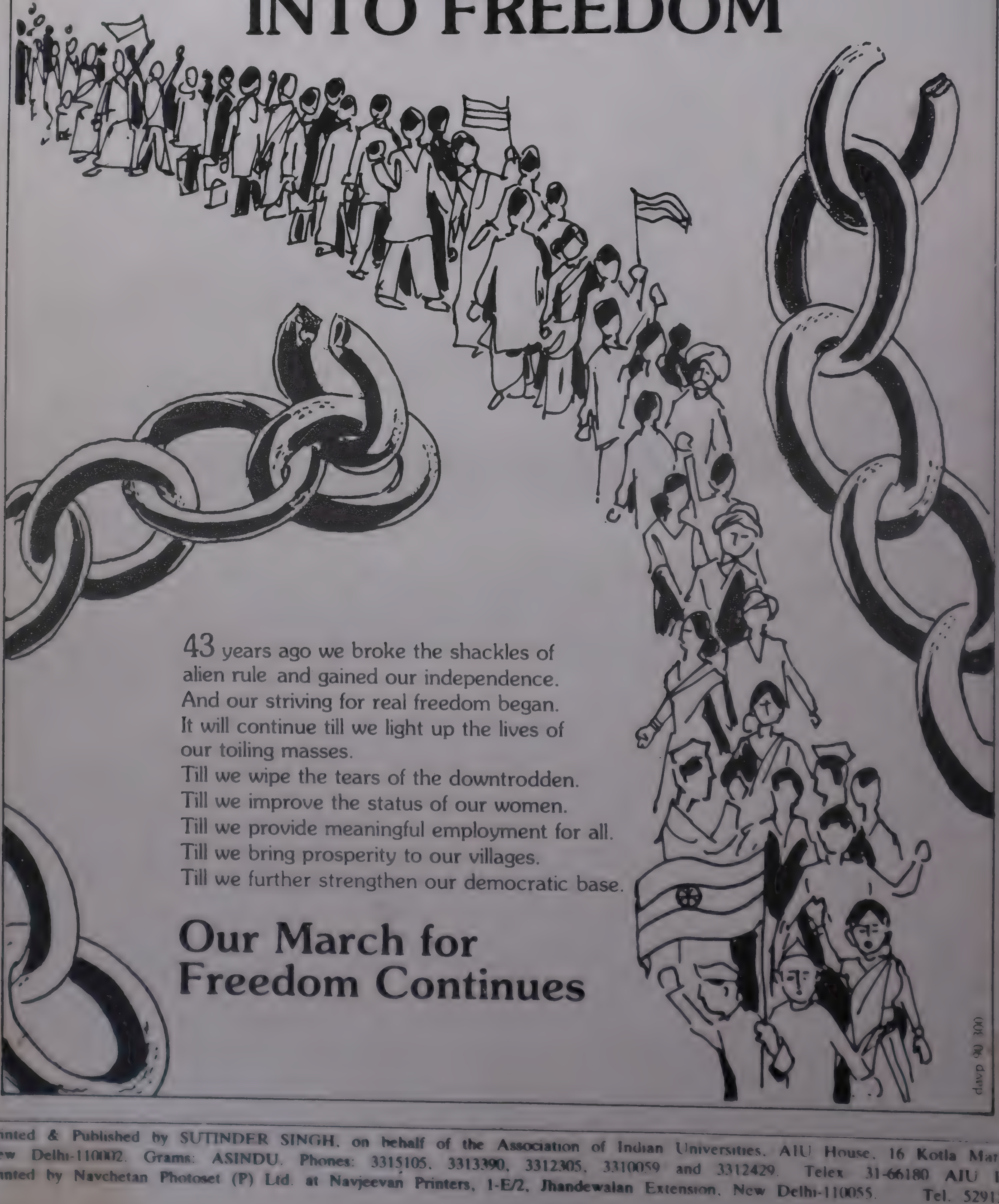
Scale of Pay for Professor: Rs. 4500-150-5700-200-7300/-
Reader: Rs. 3700-125-4950-150-5700/-
Lecturer: Rs. 2200-75-2800-100-4000/-
Accompanist: Rs. 400-15-430-20-530-25-655-30-865-35-900/- (unrevised)
Junior Research Fellow: Rs. 1800/- p.m.
Project Assistants: Rs. 1200/- p.m.
plus usual allowances and other benefits as per rules. Higher initial pay may be admissible in deserving cases on the specific recommendation of the Selection Committee.

Seven copies of application in prescribed forms (available from the Appointment Section, B.T. Road on any working day between 12 and 4 p.m. excepting Saturdays and holidays) together with attested copies of marksheets from Matriculation/S.F./H.S. onwards and a non-refundable fee of Rs. 20/- by crossed Indian Postal Order payable to **"RABINDRA BHARATI"** must reach the Registrar/Appointment Section, 56A, B.T. Road, Calcutta-50 positively by **31.8.90.** (Applicants for the posts of JRF/Project Assistants need not remit any application fee).

Incomplete applications are liable to be rejected.

R.C. Mitra
REGISTRAR

TURNING OUR INDEPENDENCE INTO FREEDOM



43 years ago we broke the shackles of
alien rule and gained our independence.
And our striving for real freedom began.
It will continue till we light up the lives of
our toiling masses.
Till we wipe the tears of the downtrodden.
Till we improve the status of our women.
Till we provide meaningful employment for all.
Till we bring prosperity to our villages.
Till we further strengthen our democratic base.

Our March for Freedom Continues

davp 90/300

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ISSN—0566-2257

University News

ONDAY, AUGUST 20, 1990 Rs. 2.50

SVU Convocation

From L to R: Mrs. Krishna Kant, Shri Krishna Kant, Governor of Andhra Pradesh & Chancellor, Sri Venkateswara University, Prof. S.V.J. Lakshman, Vice Chancellor, and Prof. P.N. Haksar, former Deputy Chairman, Planning Commission, who delivered the Convocation Address.

NATIONAL INSTITUTE OF HYDROLOGY

JALVIGYAN BHAWAN, ROORKEE

No.8/90-NIH(Admn) **Dated: 6.8.90**

Applications are invited for the following posts in National Institute of Hydrology (A Govt. of India Society) Roorkee from Indian Nationals satisfying qualifications and experiences laid down thereof.

1. SCIENTIST 'C': 8 posts (3 posts reserved for SC and 2 posts reserved for ST and 3 posts for general category.)

Area (1) Surface Water Hydrology/Conjunctive Use..6
(2) Ground Water Hydrology 2

Age: below 40 years

Scale of Pay: Rs. 3000-100-3500-125-4500. Total emoluments at the initial of the scale is Rs. 4,140/- per month excluding HRA/CCA.

Qualifications: Essential:

1. For area (a) SURFACE WATER HYDROLOGY/ CONJUNCTIVE USE: M.E./M. Tech in Water Resources/Hydraulics/Irrigation/Hydrology/Soil and Water Engg. with 60% or 7.0/10.0 CPI in both B.E./ B.Tech. and M.E./M. Tech. examination.

2. For area (b) GROUND WATER HYDROLOGY: M.E./M. Tech. in Water Resources/Hydraulics/Irrigation/Hydrology/Soil and Water Engg. with 60% or 7.0/ 10.0 CPI in both B.E./B.Tech. and M.E./M.Tech. examination. **OR** Ph.D. degree in Geohydrology/Hydrogeologyt with 60% or 7.0/10.0 CGPA in M.Sc. examination.

2. At least 5 years experience in teaching/research/design/investigation/planning in the relevant field at the level of Scientist 'B', pay scale of Rs. 2200-4000 or equivalent with proven ability of conducting independent study/research. Time spent on Ph.D. shall be considered as experience upto a maximum of 3 years.

Desirable: 1. Ph.D. in Engineering for Engineering post-graduate and post doctoral work for Ph.D. in science. **2.** Publications in reputed national and international journals.

2. SCIENTIST 'B': 7 posts (3 posts reserved for SC and 3 posts reserved for ST and one for general category)

AREA *Surface Water Hydrology/Conjuctive Use... 5
*Ground Water Hydrology 2

Age: Preferably below 35 years

Scale of Pay: Rs. 2200-75-2800-EB-100-4000. total emoluments at the initial of the scale is Rs. 3036/- per month excluding HRA/CCA.

Qualification: Essential: 1. Surface Water Hydrology/ Conjunctive Use. M.E./M.Tech in Water Resources/ Hydraulics/Irrigation/Hydrology/Soil and Water with 60% or 7.0/10.0 CGPA in both B.E./B.Tech and M.E./ M.Tech examinations.

2. Ground Water Hydrology: M.E./M. Tech in Water Resources/Hydraulics/Irrigation/Hydrology/Soil and Water with 60% or 7.0/10.0 CGPA in both B.E./ B.Tech and M.E./M.Tech. examinations. **OR** Ph.D. degree in Geology with specialisation in Geohydrology/ hydrogeology/Remote Sensing with 60% or 7.0/10.0 CGPA in M.Sc. examination.

NOTE: Time spent on Ph.D. by engineering postgraduate shall be considered as experience upto a maximum of 3 years.

2. The qualifications regarding experience are relaxable at the discretion of competent authority in the case of candidates belonging to SC/ST, if at any stage of selection the competent authority is of the opinion that sufficient number of candidates from these communities possessing the requisite qualifications are not likely to be available to fill up the vacancies reserved for them.

3. Selected persons can be appointed on deputation basis also.

The above mentioned posts carrying usual allowances as admissible under the Central Govt. rules. Age will be relaxable for persons already in service in the Institute and other Govt./Semi Govt./autonomous organisations/retrenched employees of Defence services and physically handicapped persons as per rules of the Govt. of India.

Age will be determined as on 21.9.1990.

Persons already employed in Govt./Semi Govt./Autonomous Bodies should apply through proper channel. Applications not forwarded through proper channel may not be considered.

Candidates applying for more than one areas should use separate application form for each area.

Application forms **may be obtained by 31.8.1990** from Administrative Officer, National Institute of Hydrology, Jalvigyan Bhawan, Roorkee (UP) 247667 by sending a self-addressed envelope of the size 12 × 28 cms. Application forms duly completed in duplicate with copies of all testimonials alongwith an application fee in the form of Indian Postal Order of Rs. 8/- (SC/ST candidates are exempted from the payment of fee) payable to the National Institute of Hydrology at the Roorkee University Post Office should reach the Administrative Officer, National Institute of Hydrology, Jalvigyan Bhawan, Roorkee-247667, UP **on or before 21.9.1990.**

*JOB LOCATION: ANYWHERE IN INDIA

UNIVERSITY NEWS

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Opinions expressed in the articles are those of the contributors and do not necessarily reflect the policies of the Association.

Editor :
SUTINDER SINGH

Challenges of Higher Education in 1990s

V.C. Kulandaiswamy*

When we look at the problem of the challenges of higher education in 1990s, we may possibly confine our consideration to those aspects which are relevant to Indian conditions in general and the university system in particular. I may say, even at the outset, that higher education has been receiving enormously greater attention in the second half of this century. If you take India, the number of universities at the time when we became independent around four decades back was only 18. The number now is 180. It marks a 10-fold increase. The student strength has increased from around 1.74 lakhs in 1950-51 to nearly 40 lakhs now. I am not able to think of any other area of activities which has registered a similar increase in the period under consideration. I do not think that this is unique to India. With some minor modifications, this has happened in all developing countries. Many of the advanced countries have also registered a significant growth in the university system in the post Second World War period.

The number of universities established after the second World War in the world will be more than the number of universities established during the entire period before 1945. Secondly, there is another aspect that I must refer to at this point. Both in advanced and in developing countries, Governments have been taking greater interest and paying closer attention to the university system. This has resulted in two developments:

(i) The universities are able to get more funds.
(ii) The governments have been seeking to have more say in the functioning of the universities.

These are global developments and they are true of the national scene also. In all our discussions we may have to keep this phenomenon in view.

This conference has three sub-heads under the major theme. They are:

(i) Resources
(ii) Management
(iii) Academic

Since Management is important both for the resources and academic activities, I may start with management. It is my considered opinion that the country itself suffers from an inadequate management system. Political leaders, academics and administrators have started entertaining vague fears about the inadequacy of our management system in the country. It is more true of education than in any other activity.

All of us are aware of the fact that the first three universities of the country were established in 1857. Since then new universities and new colleges were started and the system grew without any well defined planning and coordination on an institutional basis. It was in 1956 that the Government of India established the Universities Grants Commission to discharge the functions of coordination and maintenance of standards in higher education. In the last 34 years again, nothing very significant has happened in improving, modernising and reorienting the management system to suit the many developments that have taken place and the unprecedented

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expansion that we have witnessed. **While there is at least a University Grants Commission at the Central level, there is no organisation till today in the State or planning and development of higher education, and for assisting the University Grants Commission in its responsibilities of coordination and maintenance of standards.** I may mention here that the State Governments bear 100 per cent of the Non-Plan expenditure and more than 50 per cent of the Plan expenditure for higher education. Overall, the total expenditure borne by the States will be more than 90 per cent of the Plan and Non-Plan expenditure put together. Still the States have no institutional set up for planning and development of higher education. There is no means of reviewing either the progress or the performance of higher education institutions. What we have now either at the secretarial level or at the directorate level are organisations that administer a given system. We have no mechanism by which academics are brought to a forum and enabled to consider higher education needs of the State and take a short term and long term view. **It is in this connection that the national policy on education, 1986, suggested the establishment of a State Council for Higher Education in each State.** This has not yet come into existence in the States except in Andhra Pradesh. I am of the opinion that the resources that may be made available may be meagre, but even the meagre resources will not be effectively utilised if we do not have an appropriate planning and evaluating mechanism. **Notwithstanding the massive expansion in higher education, we have not developed a formal system by which the leaders in education will be involved in guiding, counselling, planning and developing higher education.**

The universities happen to be individual units loosely connected with the UGC as the apex body. Since the universities are autonomous, the efficiency of higher education will very much depend on the efficiency and performance of universities. **The university bodies like the Syndicate, Senate and the Academic Council are mostly operating with a membership that has become unequal to the task and outdated in concept since long.** The composition is not such as to handle the problems faced by the universities, the functions expected to be performed by them, and the responsibilities devolving on these institutions. In other words, in terms of their composition, functions and powers, these bodies are outdated. **The Vice-Chancellors and the academics are given a tool that is more than half a century behind time and are asked to perform their jobs.** It is said that one must do today's job with today's tools. If you do today's job with yesterday's tools, tomorrow you will be out of business. The universities are doing today's jobs with tools that are older than yesterdays and it must be said to the credit of our universities that they are still in business. A thorough revamping of the system is one of the urgent requirements of our time. In this connection we must examine carefully the recommendations of the UGC Committee headed by Prof. Gnanam, Vice-Chancellor, Madras University.

The UGC has today over 180 universities and 7000 colleges. It deals with a system that accounts for nearly 2.5 lakhs of teachers and 40 lakhs of students, and is directly responsible for coordinating and maintaining standards of these institutions. In my opinion, this is the only institution handling such massive numbers in such an extremely important area of activity, situated at Delhi and having no offices whatsoever outside. **Some of us have been suggesting for a long period of time that the UGC should establish regional offices and delegate substantially funding and monitoring powers to these centres and also delegate some of its responsibilities to the State Council for Higher Education. This is now urgent and we must press for it.**

Another aspect that I should mention under management is the autonomy of colleges and universities. There is no need now to argue for or against. This is one of the most important recommendations made by the Kothari Commission and we should in the Eighth Plan continue its implementation. **Our aim shall be to move towards a day when all the colleges shall be autonomous and the universities will cease to function as grand examining bodies.** In my opinion, it is the 'Magna Carta' for the teaching community. Any fears on the part of the teachers must be allayed by appropriate assurances.

Next I come to academic programmes. All that can be said is that we must improve the relevance of our course offerings and ensure that they have some link with the manpower needs of the nation. It may appear surprising but it is true that at no time in formulating the curriculum and syllabi even in professional institutions, one looked into the plan proposals of the Government and the consequent manpower needs. A close co-relation between manpower needs and educational programmes will be possible only when curriculum and syllabi formulation is decentralised and the teachers are made to play a role. Every institution should have some involvement with its neighbourhood. **We have today one university student for every 200 numbers of the public. It is certain that the involvement of the student community in the problems of the society could be mutually beneficial.** They may learn more from outside the classroom if they take up, at least in the final year, a project involving some of the problems and projects of the society. This was attempted in some universities but given up. Notwithstanding this fact, I still feel that this must be attempted.

Coming to the resources, there are a number of

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TOWARDS CENT PERCENT LITERACY

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Illiteracy is viewed as a serious impediment to an individual's growth and to a country's socio-economic progress. The abject poverty, disease, failure of democratic system, socio-economic disparities, environmental negligence, unhygienic way of living, failure of development programmes, etc., are all due to illiteracy and ignorance. An illiterate man is not only a burden to himself but also a burden to the community at large. Hence the need for literacy. Literacy is a must to accelerate the pace and magnitude of economic development and it is needless to emphasize that cent percent literacy has helped the developed countries to advance in all spheres of human development. Ours is a developing country and we have to concentrate on achieving hundred percent literacy. Why are we not able to achieve this even after forty three years of independence with seven five-year plans with full knowledge that literacy is a minimum threshold for the prosperity of the country? Our literacy rate as per 1981 census stands at 36.23% only. Still half of our men population and three-fourths of our women population are illiterate.

As many as 75,000 villages in our country do not have a primary school. There are over 48.8 million illiterate children—22.7 million boys and 26.1 million girls—in the 6-11 age group who are away from formal schooling. These children will grow as adult illiterates. There is thus every need to understand the problem of illiteracy in a more detailed way and to arrive at quicker and permanent solutions to eradicate illiteracy.

School Education

Since the launching of the first five year plan (1951) the Government has been giving priority to literacy and education. Article 45 of the Constitution promised free and compulsory education for all children in the age group 6-14 by the year 1960. But we have failed to achieve it. The target year was revised from 1960 to 1970, then to 1976, further to 1984 and now again to 1990. Even today only about 64 per cent of the children in the 6-14 age group complete primary education. According to the New Education Policy (1986), nearly 60 per cent of the children drop out between class I-V and 75 per cent between class I-VIII.

The following can be viewed as the major causes for the low quality and progress of school education:

1. The schools are over-crowded.
2. Poor children are involved in supplementing the income of the families.
3. The drop-out rate at the primary and secondary levels of education is very high.
4. Financial allocation to education is not sufficient to meet the demand.
5. Rapid growth of population is hindering the qualitative dimension of school education.
6. Most of the teachers working at the primary and secondary levels of education are having lower level of job satisfaction.
7. Those who are unable to get jobs in any other sector are entering the teaching profession.
8. Facilities available in teacher training institutions are inadequate and there is no sufficient supervision of teacher-trainees especially from the universities offering correspondence courses.
9. The unemployment of the educated is making the situation more problematic.

According to 1981 census, 243 out of 402 districts have literacy rates below the national average i.e., 36.23 per cent. The position at the end of the sixth plan was that 80 per cent of the out-of-school children are in the nine states of Andhra Pradesh, Assam, Bihar, Jammu & Kashmir, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal which are considered to be educationally backward.

Non-Formal Education

Non-formal education is viewed as an alternative and substitute to formal education. It is any educational activity carried on outside the framework of formal education system. Non-formal education takes the form of Correspondence Education, Distance Education, Recurrent Education, Adult Education, etc. It is meant for both adults and children.

Various non-formal education programmes are organized for 6-14 or 9-14 age groups by voluntary organisations and government but the facilities, enrolment ratio, achievement, etc., are far from satisfactory.

Various adult education programmes were also launched by Government and voluntary agencies for

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the 15+ age groups. But they could not succeed to the extent desired due to stress on mere literacy (3 R's), lack of support from development agencies, lack of relevant teaching/learning materials, lack of trained functionaries, financial constraints and lack of follow-up activities. Now steps are being taken by government to overcome these problems. The Mass Functional Literacy Programme (MFLP) (each one teach one or each one teach five programme), centre-based programmes of voluntary organisations, central and state governments as envisaged in National Literacy Mission are noteworthy in this direction. There is still a greater need to systematically plan and implement the adult education programmes.

Suggestions

If our objective is to achieve cent percent literacy atleast by 2000 AD then we must make concerted efforts.

1. We must concentrate both on achieving literacy and a better standard of living of the masses which form both sides of the same coin. The problems of poverty and illiteracy should be tackled simultaneously. The National Rural Employment Programme (NREP), Training Rural Youth for Self-Employment (TRYSEM) and other income generating programmes have to be effectively implemented. Then only the unprivileged (BC, SC, ST) families supporting children can enter the schools. Providing free books, dress, mid-day meals, additional coaching etc., must be continued for them.

2. Expenditure on education should be treated as an investment as it is a process of human resource development. The investment made on total education is Rs. 153 crores during First Plan (1951-56), Rs. 273 crores during Second Plan (1956-61), Rs. 589 crores during Third Plan (1961-66), Rs. 321 crores during annual plans (1966-69), Rs. 786 crores during Fourth Plan (1969-74), Rs. 1286 crores during Sixth Plan (1980-85). The Seventh Plan outlay for education is of the order of Rs. 6,383 crores at national level as per the general outlay. The enrolment at the elementary stage is estimated to have reached nearly to 112 million by the end of Sixth Plan period. Between 1950-51 and 1984-85 the number of primary schools have increased from 2,10,000 to 5,20,000 and the number of upper primary schools from 30,600 to 1,30,000. Even so, an acceptably large number of habitations are still without primary schools and nearly one third of the schools in rural areas have only one teacher. The emphasis so far has been on enrolment of children—approximately 95% children in 6-11 age group and fifty per cent children in 11-14 age group are enrolled in schools, the corresponding figures for girls being seventy seven per cent and thirty six per cent respectively. Over a period of thirty years we have achieved twenty per cent o improvement in our literacy rate. During 1951 our literacy rate was sixteen per cent and during 1981 i was thirty six per cent. It can be inferred that though the general outlay for education has been insufficien to meet the requirements and targets yet we have made some progress. But there is need for higher allocations and intensified efforts. We have to add Rs. 600 crores to formal education and Rs. 400 crores to non-forma education (out-of-school children and adults) to the existing allocations in order to achieve universa literacy by 1995. All this requires political commitmen and government involvement apart from the efforts o voluntary agencies. Atleast ten per cent of the tota allocation in the future plans should be spent on education in order to improve the quality of education and to eradicate illiteracy in a big way.

3. It may be noted that for the promotion of adul education in our country Rs. 5 crores during first plan Rs. 4 crores during second plan, Rs. 2 crores during third plan, Rs. 2 crores during annual plans (1966-69) Rs. 5 crores during fourth plan and 18 crores during fifth plan have been invested by our government. Rs 128 crores during sixth plan and Rs. 550 crores during seventh plan were allotted under total outlay for adul education. Yet the results achieved through the adul education activities are far from satisfactory. We have not been able to achieve even half of our targets set in the sphere of adult literacy upto the sixth five year plan The government is planning to make huge allocations to adult education and non-formal education. Apar from finances, effective strategies have to be designed to make the programmes more dynamic and relevan to the needs of different clientele (farmers, agricultura labourers, industrial workers, housewives etc.) through the appointment of dedicated and committed workers Drawing up people from government departments, appointing secondary school certificate students and appointing those who do not have any interest to serve the field of adult education is making the programme more unsuccessful. Hence the concern for qualified and committed workers, because it is not that much easy in the field oriented adult education situation for an ordinary man who remains unaware and away from the situations to make the programme successful.

4. The number of illiterates is increasing at a faster rate due to lack of sufficient enrolment and retention at the formal level and due to lack of the coverage of all illiterate groups. It may be noted that the illiterates have risen from 300 million in 1951 to 437 million in 1981 in our country. According to seventh plan (1985-90) over 50 million children will have to be additionally enrolled for achieving the goal of universalisation of

elementary education. School education and non-formal education (for children and adults) should not be viewed as independent entities. They should be aimed at simultaneously. Then only we will be able to achieve a better literacy rate.

5. Instead of scattering the resources we can follow an area based approach and aim at achieving full literacy in that area. The nine educationally backward states which are below the national average should be selected in the first instance and among them one or two states should be selected to carry out the plans and the same plans have to be carried out for other states based on the results. This will help us wipe out the regional imbalances in progress towards equalising educational opportunities. We must have village-wise, mandal-wise and district-wise plans which can cover present and the likely population for 0-6 age group and 15+ age group for next two years to aim at cent percent literacy. We must also have an idea about the growth of population and the urgent need for its control. According to 1981 census we have 68.3 crores of population in our country. It is estimated that for every one and half second five children are born and around 5.3 crores of population i.e., the population of one state or one Australia is added every year to the existing population. If this situation continues we will be having more than 160 crores of population by the year 2000 AD. Unless and until the population is controlled it is not possible to achieve cent percent literacy.

6. According to National Literacy Mission (1987) it is expected to impart functional literacy to 80 million illiterate persons in 15-35 age group (30 million by 1990 and additional 50 million by 1995). As per National Literacy Mission (1987), we will be having 110 million illiterate adults by 2001 A.D. Rs. 550 crores are earmarked to cover 30 million adults both by the Centre and State governments during the period 1987-1990. It comes to Rs. 180 approximately to make a person literate. Now-a-days it is often observed that no one among the graduates, undergraduates and educated unemployed is interested in undertaking an educational activity without any financial benefit except under rare cases. We can involve all the above persons in functional literacy activities in a particular area and we can ask them to cover as many illiterates as they can in one year in that area. We can pay them Rs. 100/- for making each person a literate. Further, these persons who undertake the literacy activity should be selected as preraks (supervisors) for continuing education programmes and they can be paid Rs. 400/- per month. Here a literacy worker can earn more than Rs. 398/- per month which is paid to a special teacher in the formal system (e.g., Andhra Pradesh). This method may provide employment opportunities to the educated unemployed as also show better results.

7. If our objective is to achieve cent percent literacy, there is every need to restructure the formal and non-formal education systems by bringing necessary changes in educational and training institutions and by providing a better infrastructure to implement the programmes successfully. We shall have to appoint greater number of qualified teachers in order to have an optimum teacher-pupil ratio of 1:30 and to maintain the academic standards. The State Governments should ensure that the textbooks are ready by the time the schools open and not in the first quarter or middle of the year as is often observed. According to seventh plan, mid term appraisal "under the non-formal system of elementary education for the age group 9-14 years current assessment indicates that the coverage may be of the order of 35 lakhs in the plan period (1980-85) as against the 80 lakhs envisaged." This throws light on the number of children still to be covered in the seventh plan. It is therefore necessary to diversify non-formal learning programmes so that a variety of options are made available to school children to enter the formal system at multiple entry points. But the present entry of non-formal education students into the formal education system is still a myth and the results achieved in this direction are far from satisfactory. This position needs to be changed at the earliest by launching the non-formal education programmes more effectively.

8. Achievement of literacy is a societal mission and the universities which are considered to be the seats of higher learning can do much in this direction. They have to contribute much to the extension dimension apart from teaching and research. (1) They have to define their own geographical area of operation (a village, a mandal, a district like that) and bestow their efforts in combating illiteracy. They can prepare an action plan to achieve this goal. (2) They have to inspire and stimulate the students to participate in non-formal education programmes (for both children and adults) and to secure necessary baseline data for future planning. (3) They can develop an attitude of responsibility and cooperation in all aspects of personal and community life. The teaching staff of the universities can offer a few guest lectures to the masses on their own area of specialisation. They can provide need-based and relevant learning materials to adults on topics related to their day to day life. If the universities can educate the community then we will be able to solve half of our problems in the society at large.

9. What we need at present is an effective planning of human resources for the future of the country. The

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LEARNING CHEMISTRY THROUGH MICROTEACHING

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There is a crucial link between teacher motivation and quality of education. In teaching methodology, the present tendency is towards greater student involvement in the learning process. The rapid introduction of modern electronic and technological aids in the educational system calls for new curricular and pedagogic strategies. The National Policy on Education (1986) has regarded 'Teachers Training' as one of the most important aspects. The functions of an Academic Staff College are to plan, organise, implement, monitor and evaluate orientation courses in teaching methodologies, pedagogy, educational psychology and knowledge enrichment for all in-service-teachers. To improve the existing programmes of training for 'Student Teaching', new devices like microteaching have come into the field.

Microteaching, as the name signifies, is an attempt to scale-down the process of full-fledged class teaching. The scaling down is done in three directions:

(i) the duration of a microteaching session is only from five to twenty minutes;

(ii) the classroom strength ranges from five to ten students (microclass)

(iii) the whole process of 'Student-Teaching' is broken up into a number of skills, and training in the skills of teaching, is provided separately in micro-lesson session.

The object of microteaching is identification of areas of deficiency in particular skills and practicing skills of deficiency. The trainee is asked to prepare micro-lessons in areas in which he is deficient and is enabled to have practice in those areas. His performance is fed-back to him in a specially discovered way, so as to have a quick modification and improvement.

Microteaching can be conducted with or without closed circuit T.V.; for a C.C.T.V. microteaching, the minimum required apparatus are (1) Vidicon Camera, (2) Video-Taperecorder, (3) Two Monitors, (4) Recording Tapes, (5) Timeclock. In this method the feedback to the teaching-trainee is provided with the help of monitors (viewing T.V.). In without C.C.T.V. microteaching, one has to make arrangements for feedback of a different type i.e. Modified Flander's Technology of Interaction Analysis (Mod. FIAT). The Mod. FIAT takes into consideration (a) Teacher talk viz. praise, accepting, asking questions, lecturing, directing and criticising; (b) Pupil talk viz. response, initiation, and (c) silence viz. silence or confusion. Finally coding and tally charts are prepared.

Generally for the Technical Teachers Training by microteaching, the procedure followed is: (1) Lectures, (2) Demonstration lessons, (3) Diagnostic lessons, (4) Micro-lessons for practice, and (5) Final lesson.

In the process of teaching, the Skill is the most important factor. It takes into account (i) Introducing the topic, (ii) Questioning – low, middle and high order, (iii) Dealing with answers, (iv) Stimulus variation – intensity, contrast, movement, self activity, (v) Use of the blackboard, (vi) Handling of teaching aids and other equipment – Blackboard, overhead projector, charts, models, transparencies, slides, audio visual means, experiments, (vii) Non-verbal cues, (viii) Reinforcement, (ix) Use of illustrations and examples, (x) Exposition or Lecturing – purpose, vocabulary, fluency, continuity, clarity, sequence, pace, voice, illustrations, Repetition, (xi) Explanation (xii) Encouraging group discussion, (xiii) Planned repetition, (xiv) Teacher liveliness, and (xv) Closure.

There are twelve observation categories for micro-taught lessons to observe changes – (1) Clarity of aims, (2) appropriateness of aims, (3) Organization of the matter, (4) selection of content, (5) selection of materials, (6) beginning the lesson, (7) clarity of presentation, (8) Pacing of the lesson, (9) Pupil participation and attention, (10) Ending the lesson, (11) Teacher-pupil rapport, and (12) Variety of evaluative procedures.

The Feedback in microteaching involves evaluation by students, supervisors & self (by replay): but the most effective approach for feedback is: Self-viewing or Self-evaluation (idea of self improvement through self-confrontation).

The effectiveness of microteaching technique is owing to its usefulness for: (1) determining the appropriate level of instructional materials, (2) for pre-employment predictions, (3) to train supervisors, (4) for supervision and evaluation purpose, (5) refreshment courses to in-service teachers, (6) time saving, (7) student discipline and performance in classroom, (8) avoiding psychological fear by maintaining privacy and academic freedom of trainee, (10) accreditation and assessment during vocational training.

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The significance of microteaching as a technique has multiplied in the modern days of microprocessors, microfilms, microfisches, micropublishing media (Computer, telecommunication), display technology, C.D-ROM disks, ODD disks & microform.

Chemistry: A Case Study

Chemistry is a central science. It deals with the integrated study of the preparation, properties, structure and reactions of the elements and their compounds and of the systems which they form. A student of chemistry may feel afraid of the subject, considering it only a packet of symbols, formulae & equations, which creates possibilities of confusion, are boring during memorizing and recalling of the subject. Going away from traditional methods of studying chemistry, there is acute need of rigorous change in curricula (precise, pointed and objective) in the light of interdisciplinary approach due to area overlap of chemistry with physical, biological, earth & material sciences. Now chemistry is a uniquely Molecular Science. In the classroom, subject should be taught with the help of modern electronic and technological audio visual aids bringing active participation of students with brain storming exercises. Emphasis should be given on demonstration, experimentation, motivating, problem solving, developing skills, clarifying objectives and creating subject interest by taking examples from every day life. A teacher should introduce the subject systematically by teaching a few basic principles and concepts and explaining the rest as their applications.

The newer idea of microteaching as a technique makes the learning easy for the teacher as well as student. □

CHALLENGES OF HIGHER EDUCATION IN 1990s

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aspects that deserve consideration. I will, on this occasion, confine myself only to one development. During the last 20 years, distance education and the open university system have come into focus. All over the world, both the developing and developed countries have established open universities. They symbolise a step towards using science and technology in education and increasing the productivity in education. **We have today in India, 11 per cent of the total students already in what we call the correspondence education/distance education by the formal universities and the open universities. This is only all India average. When we consider Southern States, this percentage is 22.** When we come to Tamil Nadu, this will be around 41 per cent. Very soon Tamil Nadu may achieve a stage when students in the distance education mode will be larger in number than those in the formal education system. There is tremendous scope for utilising this new development to promote higher education with no compromise on quality. It is a cost effective method which will take education to places and people hitherto unreached by the existing system. Even here we are wasting large sums of money. There are at present over 35 formal universities and three state level open universities, and one national open university offering higher education programmes. There is wasteful duplication of time, effort and money. If we take a subject like History, it is offered by almost every university at the under-graduate level and each one is offering the course with print materials produced independently. It is quite possible for all the universities to use the materials produced by one university with or without modifications.

The Indira Gandhi National Open University has a vast network of study centres. It has fairly sophisticated facilities for production of video films and audio cassettes. **It is also entrusted with the task of coordination and maintenance of standards of distance education. In other words, the IGNOU is for the distance education and open university system what the UGC is for the formal system. It is both a university and a grants commission.** It is desirable that we develop a network of universities offering distance education programmes.

Education must be made eligible for loans from banks and organizations like the L.I.C. There must be provision for boys and girls to get loans from banks to pursue higher studies.

Donations given to institutions of higher education must be made eligible for 100 per cent tax exemption. ■

A Curiosity About History

"Education without imparting to those who are educated, a curiosity about history seems to be lacking somewhere, not because history is an interesting discipline, because having journeyed through life as I said, history, which is a response to the question as to how things happened in the past, is a very important element in our coping with the future", observed Prof. P.N. Haksar, a distinguished diplomat and former Deputy Chairman of the Planning Commission, while delivering the Convocation Address at the 33rd Annual Convocation of Sri Venkateswara University. Excerpts

As I see it, now, the Sun is about to set on this 28th day of May, 1990. Tomorrow in all probability, and that is a theory of probability, there will be another Sunrise, and another day will begin and as some one has said each day is a fresh beginning and each morning is a world made new. So, it all depends on how we confront our tomorrow which is bound to come. Even as we are armed with our degrees, diplomas, gold-medals and so on, the important thing is how we confront tomorrow because today the 28th day of May would have become the time past. And the question would arise what is the relationship between the time past and the time to come. I say this because on one occasion atleast I had occasion to interact with a brilliant product of IIT, Kanpur—a great specialist on Computer architecture, computer languages, artificial intelligence. I asked him a question, 'I can see that you are a brilliant graduate or Postgraduate from IIT. Does history mean anything to you?' I got a reply, 'Yes sir, Yes Mr. Haksar Sir, when I was at School, I did read History, there are something—some were good, some were bad, but are not they all dead?' I said yes, that is one view of history. But I asked him whether he read the balance-sheet of the company he was working for, and he was working for Tata Management Consultancy Services in Bombay. I asked him whether he read the balance sheet of last year, year before last and year before last. He said yes, of course, I do, in order to find out how the company is faring. So, I asked him whether that was not history of your company, to which his answer was I never thought of history in that way. So, according to me, education without imparting to those who are educated, a curiosity about history seems to be lacking somewhere, not because history is an interesting discipline, because having journeyed through life as I said, history, which is a response to the question as to how things happened in the past, is a very important element in our coping with the future. Well, as I see it, in another 9 years, 7 months and 3 days, this 20th Century will come to an end. I think there can be no dispute about it, provided of course nothing catastrophic happens and the earth continues to revolve round its axis and it continues to go round in its elliptical orbit around the Sun, of which there is a high probability, but high probability, not a certainty. So, this century will come to an end. I have already spent 77 years of this century, so, I do not have to read about what happened in this century. It is a part of my personal knowledge and experience, a great part of it, a period seen through the eyes of my parents and my teachers. And I have often asked: 'Is this 20th century as it comes, drags on towards its last decade of 9 years, 7 months and 3 days, is it an exact replica of the 19th or 18th or 17th or 16th century?' The answer is no. 20th century and I will just put it to you for your consideration, has several distinctive features which we must take into account, if we are to cope both with our own country and the world in which we live. And I submit that the first important fact, which can be quantified even, which can be measured, the first important fact is that this century has witnessed tremendous explosion of human consciousness. No other century—19th, 18th, 16th, 15th, even the great renaissance did create such an explosion of global consciousness, such explosion of consciousness in global skill. And the question is how has it come about? What is the evidence? I will submit that as this century began in 1901, cast back your mind to the map of the world. Large parts of the world were dominated by Eurocentric Empires—there was the British Empire, the French Empire, the Dutch Empire, the Portugese Empire, the Hapsburgh Empire situated in Vienna, there was Ottaman Turk Empire, there was the Czarist Empire and China was ruled by the Manchu Empire as the century began. And half way through this century human beings who were regarded in the 19th century, and Gandhiji used to say, 'dumb millions', suddenly gained awareness, suddenly gained consciousness. One of the English poets said in the 18th century that man's cares were bound by only few paternal acres. It is no longer so. Not only have these empires vanished, there have been two world wars in this century. Not only have the empires vanished and two world wars have happened, there have been vast upheaval called national liberation movements of hundreds and millions of Chinese, hundreds and millions of us Indians, hundreds and millions of Russians constituted in the Czarist Empire.

There have been revolutions and national liberation movements. All these various streams have gone into the moulding of human consciousness of today and if we are concerned at all in engineering our future, or engineering the future of this globe, which today because of communications revolution is called the global village, which our ancestors did not call a village but they called it a "Kutumbam Vasudaiva Kutumbakam". So, the world of today which we have to cope with, which we have to live in, the world of today in its macro aspect, is dominated by vast turbulence of human beings.

We should not mistake it in any way. That is of course one palpable, tangible, measurable, measurable I say definitely measurable aspect of our contemporary world. The second, and related to the first, because knowledge is also a product of consciousness. If you do not pose questions rightly, you do not get answers. And this century has seen explosion equally of science and technology. Those who measure it say science and technology has grown exponentially whereas social institutions, economic arrangements, legal structures, do not respond to this exponential growth of knowledge expressed in science and technology. But that is a macro aspect of the world as it is today. Vast explosion of human consciousness, vaster explosion of human knowledge expressed in science and technology, explosion in material sciences, explosion in biological sciences which is interfaced with biophysics, biochemistry, biotechnology, bioengineering and so on and so forth. And above all the revolution in informatics and the explosion in material sciences. Ever new materials are being created, whether it is in the form of fibre optics or super conductivity and so on and so forth and of course plastics, which is a revolution both in materials and in chemistry. So, which ever way you look, 20th century or what remains of it, is not a replica of the 18th century. History does not repeat itself. As someone said each generation stands on the shoulders of the generation that has preceded and looks forward ahead and scans the horizons, searches and I hope the education system which we have in our country not only imparts knowledge as against mere learning but does impart a perpetual sense of enquiry. Because what is called a scientific temper began when human beings began asking different set of questions. The earlier question was "Who?" and only when we have started asking how and why that a scientific temper began. And this is an age of explosion of human consciousness, this is an age of explosion of knowledge of science and technology and this is to keep pace exponentially. You can see the collapse as it were of the mechanical deterministic world right upto the 19th century. Glorious world of Newton and yet we have today a world of general theory of relativity, we have a world of particle physics, which teach us between variability and uncertainty, we have a whole new world of biology opening up with the DNA molecule being the basic structure of engineering of human beings and other things—plants, genetics, animals, human beings. And India wanting to be part of this world has to cope with these explosions of human consciousness, and of science and technology. If those are the two important critical variables of our time, the third variable is perhaps even more important, although, living day after day we may not see its immediacy or urgency. And that is the explosion of consciousness about our environment. It is no longer a matter of science fiction, it is no longer a matter of saying, "it is somebody else's earth". Every day, evidence accumulated of the precariousness of this earth. Whether in terms of your ozone layer depletion and this is not fanciful because those of us who know the atmosphere of Mars. People used to think that there might be intelligent human beings on Mars. But we know the atmosphere of Mars is full of carbon-dioxide and the temperature at the poles is minus 150° which could not sustain any life. And the earth is getting on to be in that position, by all the pollution. My friend, Yashpal, calculated that America which is very advanced country pollutes its environment at the rate per capita of 5 tonnes a day, and we are nowhere in the lead. That does not mean that we have a right to pollute the atmosphere at the rate of 5 tonnes a day, but here is a dilemma; a country poised on industrialisation, how much pollution it could do. What should be the part of development which is least pollutant? These questions arise, because the rise in earth temperature at the poles is no longer a matter of fiction. It is a question of fact. No wonder that the movements in Europe and elsewhere, oriented towards problems of psychology are gaining everywhere adherence of consciousness of human beings. So, here we have a third variable of our future—the environmental, the biosphere in which we live and breathe and work, if that is not enough to complicate matters, we have for the first time in human history an event which took place in August of 1945 viz., the explosion of atomic weapon over Hiroshima and Nagasaki. Human mind thinks in certain set terms and at first people say nuclear weapon is one more weapon. Until we realise that it is not one more usable weapon which led a very eminent social scientist who wrote a monumental work on the sociology of war and peace to say that the dilemma of a nuclear age is how to use nuclear weapons diplomatically, that they are not used militarily. And I should have thought that Mr. Colin Creighton who wrote this book would resolve this dilemma. After writing well over 1000 pages, he did not, not only fail to resolve this dilemma but merely ended up, by saying that he hoped that human beings would have the wisdom to recognise that nuclear weapon is no ordinary weapon, unless human mind in the chanceries of the world whether they are State departments of America or British foreign office or French foreign office or anywhere else continues to think in old terms. What are the old terms? Old term is eversince humanity gained its humanity, became homossapiens. We have fought wars. We have fought tribal wars. We have fought local wars. We have fought religious wars. We have fought world wars. That is true. But those wars were fought under a doctrine that war was legitimate, that it could be won, that there can be victors and vanquished. But we realise that nuclear weaponry has a presiding doctrine which is called MAD—Mutual Assured Destruction. So, even those who cannot use nuclear weapons are stockpiling intercontinental ballistic missiles, intermediate range ballistic missiles, short range ballistic missiles, sea-launched ballistic missiles, air launched ballistic missiles, multiple entry, targeted entry, re-entry vehicle masses of them. And then there is the whole scenario of earth's fate in the event of a few megaton exchange of atomic weapons. This is something new. It contradicts the whole centuries—old theory of balance of power. Because balance of power rested on the legitimacy of war, as instrument of policy. The Arch Priest of balance of power was the German Philosopher called Cowzealt and he said war is a continuation of politics by other means. It is legitimate. Even in the religious texts, wars are dharma yudh, legitimate. It is Jehad, legitimate. It is just war in the Bible, it is legitimate. And the question that arises, is this war and the nuclear weaponry legitimate?

These are macro aspects, but real macro aspects are the world realities of today. There are other aspects. How is the world moving politically? We have the process of unification going on in Western Europe, now including Eastern Europe, now including Germany, now including even Russia, upto Urals. And this unification is going on despite the history of wars between France and Germany and so on and so forth. In North America, there is an attempt to create a unified system of Canada-United States. There remains of course Japan, where does it rest? It is argued that Japan is bound to be a part of that system which people are calling the new uni-polar world. The new uni-polar world will extend from Pacific to Japan and from West-coast of America right upto Urals. And the question which is haunting us all is where does a country like India or a country like China, which are large entities, where do we fit in? Where do we fit in? This is not a scenario, I am painting, out of sheer perversity of my mind. This is a scenario which is being painted, if you have eyes to see and the ears to hear and to read. This is what they are talking about. It is argued that the 3rd world of which India is a part will become what might be called a part of the barbarians and the Northern part will be the citadal of civilization. As you know what happened to the Roman Empire to which my answer is, Roman Empire went through areas inhabited by barbarians, and ultimately succumbed to the barbarians. So, we do not want to have a scenario of conflict between the third world and the northern world, but that is where scenario is. We are indebted, we are scientifically, technologically backward. Our rate of accumulation of capital is not enough, we borrow money and so we are indebted. Our educational and cultural systems are not responding to the changes needed. Our societal systems are still deeply rooted in the past and not renovating themselves to face the future. But there is one thing atleast of which we in India can be proud or atleast the founding fathers of the Indian constitution can be proud. Recognising our backwardness, recognising that we are a poor country, we are very fortunate in adopting atleast in principle and we have practiced it in one way or the other that the only medium through which human consciousness could legitimately articulate itself is a system, the political democracy. And I think we should cherish this heritage of political democracy, inspite of its severe limitations. Because we can see that even more advanced countries like Soviet Union in the absence of democracy are in a state of convulsion. And if India is to go forward, build itself up, as a modern state and not a replica of the Satavahanas or the Cholas or the Pandyas or Vijayanagar Empire or the Gupta Empire, Dynastic Empires, Moghul Empire or any other Empire. But, if you are to have a modern Nation State, then we have to think not only about the explosion of this consciousness in our country. Now the curious thing about this explosion is that when it takes place, it naturally takes the form, the primordial form. I am a Naga, my first consciousness is Naga. I am an Andhra, my first consciousness expresses itself to that very powerful thing called language and culture. But, the art and science, but of politics and the engineering of a State, is the art and science of educating people to transcend their roots. Because as you know a tree does require roots. We all have roots. We have Andhra roots, we have Tamil roots, we have Bengali roots, we have Punjabi roots, that is fine but roots must have foliage and roots enable the tree to grow and look towards the sky and give shade to people. This concept of building a garden of India in these days plays a significant role. Take a year like 1556, in India, it is a reign of Akbar, Medieval period. Then what was happening in China. In India Moghul dynasty, in China the Ming dynasty, in Russia the Romonoff dynasty, in France the Bourbone dynasty, in England the Tudor dynasty, Germany does not exist even as a unified kingdom. Modern Nation States are recent phenomenon in world history. England and Scotland became unified only in 1707. Germany became united only in 1871. Italy became united only in 1863-64, and these are products of change. Our civilization grew on the base of agriculture, and while that agriculture must continue in its modernised form, a new industrial society, industrial civilization has to be built and this has to be built in a manner that the basic macro problems of the world do not contradict it. That is to say the social system, the political system, the political morality has to take into account explosion of human consciousness, has to take into account the science and technology and India's position in it, has to take into account the environmental concerns and India's position in it, has to take into account the larger question of war and peace and India's position in it. And in the measure the younger generation, the students, the teachers, people belonging to various walks of life have to address themselves to these very urgent problems of our country. We are likely to commit serious mistakes, both in the process of Nation building and in the process of living in this global village. It is with the deepest and the profoundest regret I have to say that our biggest failure in India has been a total divorce between development process and educational and cultural process. No society, worthwhile society, no good society can be built, where development process is disjuncted from educational and cultural process and this is not new. After all in the ancient times when you tried to define who is a human being, there is a beautiful verse in the Sanskrit to say:

Sahitya-sangita-kala-vihinah
Sakshat pasu puchcha-visana-vihinah
trunam na khadan na ca jivamanam
tad-bhagadheyam paramam pasunam:

And who is a cultured person?

Esam na vidya na tapo na danam
jnanam na silam na guno na dharmah
Te martyaloke bhuvibharabhuta
manusya-rupena mragas-caranti:

So, we are not even consistent with the heritage of the past, where a person is defined and distinguished from the animal world in terms of his sensitiveness to Sahitya Sangeet Kala. Where he is sensitised to Vidya, to Dhan, to Sheel, to Gunam, to Dharma, etc.

Towards Cent Percent Literacy

(Contd. from page 5)

purpose of human resources development is to maximise man's contribution to the creation of productive goods and services. In fact, human resource development is the process of increasing the knowledge, the skills and the capacities of the people in a society. This requires a thorough study and estimation of manpower resources needed for the country. Unless we strike a better balance between costs and benefits of education and utilisation and non-utilisation of the existing human resources, it is not right on our part to go on simply investing on chronologically graded and certificate-oriented formal educational system. Once we had traditional education where the emphasis was on teaching of Vedas, Upanishads to a particular class of people. We have modernised it. Educational opportunities are being provided to one and all and more number of schools are opened. But still we have to modernise it by introducing vocational courses and increasing allocation to certain fields like science, technology and communications and reducing the brain drain and educated unemployment.

Let us work and hope to achieve cent percent literacy and let the cent percent literate citizenary herald, symbolise and contribute to new development strategies. ☐

Southern Varsities VCs Meet at Madras

The one day Vice-Chancellors' Conference which was held at the University of Madras on July 27, 1990 was attended by 32 Vice-Chancellors from Southern Universities. Inaugurating the Conference, the Hon'ble Education Minister of Tamil Nadu, Prof. K. Anbazhagan referred to the quantitative leap in Higher Education since independence and said this alongwith quality and equality formed the "elusive trinagle". Access to Higher Education should be available to all those who desire it. He felt that the Universities by their structure, mode and process were perpetuating inequalities prevalent in social structure. He recommended parental involvement at the tertiary level of education for maintaining quality control.

The Indira Gandhi National Open University Vice-Chancellor Dr. V.C. Kulandaiswamy in his keynote address made a forceful plea for "complete revamping" and restructuring of the University Grants Commission to streamline the functioning of the University Grants Commission. (Dr. Kulandaiswamy's keynote address is reproduced elsewhere in this issue).

Dr. A. Gnanam, Vice-Chancellor, University of Madras, welcoming his colleagues, said the Higher Education System was confronted with the problem of high costs per graduate. This was due to poor economy of scale in colleges, over sized staff pattern, student subsidies and inefficient use of resources. In the coming decade, there would be a demand for shift in emphasis from knowledge to skill, from formal system to informal, from teacher to technology-supplemented education, and from over-regulated to decentralised systems.

The discussions at the conference revolved around three major areas of the Challenges of the 90s viz: (1) Academic, (2) Mobilisation and Uses of Resources, (3) Management of Higher Education.

I. The Session on "**Academic**" was chaired by Dr. Bh. Krishnamurti, Vice-Chancellor, University of Hyderabad and the discussion led to the following consensus.

(1) Merit Promotion has lowered the academic standards and so periodically new recruitments should be made.

(2) Developing a system of self evaluation of teachers followed by an external evaluation of Teachers by Students should be considered as a healthy practice.

(3) Involvement of students in extension activities including National Literacy Mission activities is strongly recommended.

(4) Declaring all the affiliated colleges as autonomous was suggested, so that only viable colleges will survive.

(5) Granting autonomous status to Colleges should be followed by initiating accreditation procedures by the University.

(6) Implementation of "Semesterisation" and introduction of Internal Assessment is recommended.

(7) Based on a comprehensive principle atleast 50% of the students should be provided with some facility to be mobile within the State.

(8) Strict implementation of work load norms is a must.

(9) Granting Sabbatical Leave for committed teachers is suggested for engaging in research activities.

(10) Providing more access to women learners for pursuing Higher Education is recommended.

(11) For the purpose of implementing the system of Internal Assessment, it is suggested that intensive training should be provided to teachers through workshops.

(12) Introduction of an evaluation system based on students involvement in social development activity.

(13) Introduction of Mother Tongue as medium of instruction at the Higher Education was considered as a theoretical interest. However, the Vice-Chancellors resolved that University has to be cautious in his approach.

(14) The evils of Merit Promotion was reiterated by all Vice-Chancellors and it was recommended that such policies should be carefully evolved.

(15) A system of "Floating Professors" should be evolved instead of creating permanent positions at the University/College levels.

II. Mobilisation and Uses of Resources

Dr. M. Anandakrishnan, Vice-Chancellor, Anna University in his presentation of the theme paper indicated above listed four issues related to resources mobilisation which are as follows—Clarity of objectives, Predictability, Continuity and Accountability. The suggestions and recommendations in this area were as follows:

(1) Since the Universities have a vanguard position in terms of knowledge generation through research and teaching activities, they should use bankable ideas through consultancy activities. To this extent, Dr. Anandakrishnan suggested that the University system

must be planned on a "Generational Basis".

(2) Following the generally acceptable measures and methods to operationalise accountability was suggested at Colleges and University levels.

(3) Development of a Perspective Plan for a 10 year period is recommended which could be periodically reviewed.

(4) The Government may be requested to sanction liberal block grants and not to link block grants with deficit in the budget and income from some specific sources such as Institute of Correspondence Education.

(5) Endowments without reference to any one specific purpose or activity may be created.

(6) Cent percent tax relief for such endowments may be requisitioned.

(7) Educational cost and fees in Higher Education should be reviewed and to a large extent Higher Education should be self sustaining. The feasibility of increasing the tuition fees, revenue through levy on the amenities and the consultancy services must be explored and persued.

(8) Optimum utilisation of existing facilities and avoidance of proliferation of courses and rationalisation of employment structure by resorting to wider application of automation and computerisation of administrative system would help reduce avoidable expenditure.

(9) Better financial management through investment analysis and zero based budgetting could be practised.

(10) Government may be prevailed upon to levy some sort of educational cess.

(11) Loans from financing bodies (Banks, LIC) for income-generating projects to Universities and for pursuing education to students may be made available.

(12) Government may be approached to make easier the flow of funds from foreign agencies for approved projects.

III. Management of Higher Education

The overall conclusion in this area revolved around Accountability, Flexibility and Decentralisation. To suit the changing conditions, the constitution, authorities and functioning of University bodies are to be remodelled. Objectives of Higher Education have to be periodically reviewed: Proactive and Prognostic management rather than reactive and diagnostic management is what is required.

In discussing the above rationale, the following recommendations were made:

(1) Education should be made relevant to social context and the humanities subjects may concentrate on societal issues.

(2) Work experience should form an important component of Higher Education Curriculum.

(3) The management structure should have provisions for monitoring the social and academic accountability of the system. Also Performance Appraisal of teachers at the individual, departmental and the institutional levels may be made.

(4) Educational administrators should be given orientation in modern management techniques.

(5) Progressive introduction of automation and moratorium on filling vacant non-academic positions arising due to retirement etc. is strongly suggested.

(6) Autonomy at all levels (Department, College and Project) should be considered on a priority basis.

(7) Demonstrated ability of teachers should be recognised and for recognizing such activities of teachers proper mechanisms should be evolved.

(8) At micro levels, roles, authority and delegation of activities should be defined.

INDIAN COUNCIL OF MEDICAL RESEARCH

I.C.M.R. AWARDS-1990

Indian Council of Medical Research, New Delhi extends the date **upto 30th September, 1990** for submission of nominations/applications from Indian Scientists for its various prizes and awards in the field of Biomedical Sciences. Applications forms and other relevant information about the prizes can be obtained from the **Director General, Indian Council of Medical Research, Ansari Nagar New Delhi.110 029.**

Seminar on Guidance & Counselling

An Orientation Seminar for University and College Teachers on Guidance and Counselling was recently organized by Dept. the of Student Services of the Mahatma Gandhi University. Inaugurating the seminar, Prof. U.R. Anantha Murthy, Vice-Chancellor or Mahatma Gandhi University said that every teacher had the responsibility for guiding his students constructively in accordance with their interests and aptitudes. In providing guidance and counselling to our students we should not blindly imitate the Western Psychologists. We should create a method of guidance and counselling programme suited to our culture and traditions. The guidance should be suitable to the individual needs of the student and the common good of the society, he added.

Dr. Ninan Abraham, former Vice-Chancellor of Kanpur University, who presided over the inaugural session, stated that counselling services were necessary to help the students to solve their emotional, educational and career problems by themselves. They must come forward to discuss their problems with the teachers who in turn would deal with them friendly in a manner and help them find a solution to their problems.

Shri V.S. Gopalakrishnan Nair, State Vocational Guidance Officer, Trivandrum, delivered the keynote address. He spoke on the importance of equipping the student with the necessary skills and knowledge suitable to his career needs. Guidance, he said, was an important function of education as it helped the student to develop and utilize his potentialities to the maximum possible extent. He wanted that the Liaison Officers of the college guidance units should work in association with the University Employment Information and Guidance Bureau, voluntary agencies, the other teachers of the institution, student leadership, and experts from outside.

Shri George Joseph, Director of Student Services, in his address stressed the importance of establishing career guidance units in every college as an important student service.

Papers were presented on Youth Problems and Adjustment, Transactional Analysis, Roles of the University Employment Information and Guidance Bureau and the Guidance Units in the College, Personality Integration, etc.

The following recommendations were made at the Seminar.

(1) Each college should establish a career guidance unit. This unit should be provided with a career information room where students can refer career literature and get answers to their queries regarding opportunities for further studies and career opportunities.

(2) The career information centre in the college should collect paper cuttings of career and educational advertisements, charts, posters, books, periodicals etc. and make them available to students. It should be provided with overhead projector, public address system, V.C.R., Video cassettes and films, notice-board, working capital for effective dissemination of career information to students.

(3) The career guidance unit should organize seminars, lectures film shows, group discussions, workshops etc. to give proper training to students to improve the career prospects of students. Intercollege guidance seminars should also be organized on regional basis which should be attended by the teachers and students of the region.

(4) Educational programmes to develop the various skills of students such as language proficiency, communication skills ability to face interviews etc. should be organized for the students.

(5) Both at the college and university levels competitions should be conducted in (a) Elocution (b) Essay writing (c) Quiz (d) Poster-designing on career/educational prospects.

(6) The University Dept. of Student Services/Employment Information and Guidance Bureau should have a mobile exhibition unit to educate students in the colleges on careers, courses and the development of various skills of the students. This unit should be provided with a 16mm projector, a public address system, a VCR., educational video cassettes, a tape recorder and audio cassettes with lessons, career posters, charts, etc.

(7) The University should arrange visit of guidance experts to colleges for giving special lectures.

(8) Each college should organize orientation/training programmes for the students on better study methods, development of reading skills, communication skills etc.

NCC Status for NSS

Mr. K. Venkata Sivaiah, Commissioner of Collegiate Education, Govt. of Andhra Pradesh, said that there was every need to view National Service Scheme (NSS) on par with the NCC, since both take up challenges facing the country and work for the well-being of the nation as a whole. The prerogatives, benefits and privileges that are being extended to the NCC be also given to the NSS. He was the chief guest at the Conference of Principals and NSS Programme Officers on Mass Programme for Functional Literacy held at Kakatiya University on August 5, 1990.

Mr. Sivaiah appealed to the Principals for their total identification vith the activities of the NSS and dvised them to work with commitnent and dedication for the realisaion of the cherished ideals.

In his presidential address, Prof. Jafar Nizam, Vice-Chancellor of Kakatiya University, said that every educated youth in the country owed a moral responsibility to work for the eradication of illiteracy. He informed that there was a proposal to involve social workers and citizens from other walks of life very effectively in the NSS activities of the university particularly this time to make the International Literacy year 1990, both meaningful and fruitful.

Bharat Gyan Vigyan Jatha

The Bharat Gyan Vigyan Játha (BGVJ) is in fact a crusade against illiteracy in the country. Conceived on the lines of Bharat Jan Vigyan Jatha, the BGVJ will try to mobilize several hundred groups of educators, activists and artists for the literacy campaign in this International Literacy Year.

Each of these groups will conduct a 40-day Jatha from October 2 to November 14, 1990, in the course of which they will reach about 120 to 150 centres. Thus a total number of 500 such groups one for each district—in the country will cover over 60,000 centres. In addition, each such centre will cater to 8 to 10 neighbouring villages, thus reaching the message of science and literacy to about six lakh villages in the country. Through this campaign the Jatha hope to capture the emotional backing of the people, of their political parties, of their cultural and other organizations in the cause of literacy, just as the freedom struggle did in the thirties and forties. It will campaign for literacy, generate a demand for literacy and create a people's machinery to deliver it. The powerful media of folk arts and classes to small groups of people will be used to disseminate the message of literacy and science in the Jatha programme.

Short Term Course on Instrumental Analysis

The Chemical and Biochemical Engineering Divison of Thapar Corporate Research and Development Centre, Patiala, proposes to organise a short term course on Instrumental Analysis from 26-30 November, 1990. The objective of the course is to educate technical personnel from industries in instrumental analysis and to enable them to improve upon their performance and productivity. The importance of instrumental analysis in the fields of basic and industrial research, quality control, pollution controle etc., is well recognised all over the world. It becomes, therefore, imperative that technical personnel from industries keep themselves aware of the developments in the area of modern analytical chemistry.

Further details can be had from Dr. Rajesh K. Sharma, Research Scientist, Chemical and Biochemical Enginering Division, Thapar Corporate R & D Centre, Post Box No. 68, Patiala 147001 (Pb).

Bharathidasan Varsity's Literacy Drive

The Centre for Adult, Continuing Education and Extension, Bharathidasan University, has begun their literacy drive in seven villages—Ayilapettai, Koppu, Kulumani, Chinakaruppur, Periakaruppur, Perur and Mekkudi with a view to make these villages cent percent literate.

In Kulmani village alone there are 717 persons in the age group of 15-35 years, of whom 424 are females. The village has only two Adult Education Centres at present covering 70 illiterate women.

A Jana Shikshan Nilayam has also been set up in the Ayikapettai village.

Edu-Tech India'90

An International Exhibition and Conference on Educational and Vocational Training Equipment, Materials, Technology and Services will be held at Ashok Hotel, New Delhi from 17-20 October, 1990. Further details of the conference may be had from Applied Technology Services Pvt. Ltd., 14-F, Basant Lok, Vasant Vihar, New Delhi-110 057.

News from Agril. Varsities

Agricultural Officers' Workshop

Dr. Khem Singh Gill, Vice-Chancellor of the Punjab Agricultural University, recently inaugurated a two-day Agricultural Officers' Workshop held at the university to finalise the package of recommendations for the ensuing Rabi crops. In his address Dr. Gill said that since wheat was the major Rabi crops of Punjab, the farmers should sow pure, clean and disease-free seed to obtain maximum yield. He exhorted that the farmers should be educated about the judicious use of various farm inputs to diminish the cost of production. He further said that in order to control diseases like loose-smut and ear cockle, the farmers should get their seed treated with suitable chemicals before sowing. In the area where termite was the problem, the farmers should use Aldrin, he added.

The Vice-Chancellor said that the State of Punjab had been divided into six agro-climatic zones and a research station in each zone had been established to conduct area specific research. Dr. Gill informed that the university had a number of wheat varieties having a yield potential of more than 45 quintals per hectare. He emphasized that a campaign should be launched throughout the State to gear-up the production of oilseeds and pulses.

Dr. Mukhtar Singh Bal, Joint Director of Agriculture, Punjab while speaking on the "Targets and Problems of Rabi Crops', said that a target of 115 lakh tonne of wheat had been fixed for the year 1990-91 besides 1.10 lakh for barley, 3.01 lakh tonne for oilseeds and one lakh tonne for pulses. Dr. Bal informed that his department had conducted a survey to adjudge the performance of various seed varieties in Punjab and had come to the conclusion that HD 232g and WL 711 varieties of wheat were the highest yielders. He urged the PAU scientists to evolve new wheat varieties with yield potential of 50 quintals per hectare. He further said that his department had enough seed of wheat for distribution among the farmers during the current rabi season. Dr. Bal urged the PAU scientists to conduct the research on the use of biogas ,slurry, utilization of farm machinery, declining water table and spinkler irrigation. He assured that his department would supply enough farm inputs and seed treating equipment to the farmers during this sowing season.

Dr. R.S. Kanwar, Additional Director of Research of the PAU, said that as a result of research work in the areas of crop improvement, two new wheat varieties namely PBW 22 and durum wheat PBW 215 had been developed which would be released after the approval of the State Variety Approval Committee. He said that four brand formulations of Isoproturon had been recommended for the control of Phalaris minor and broadleaf weeds in wheat. He further said that a new herbicide Stomp 30 EC had been recommended as pre-emergence application within two days of sowing to control phalaris minor and other broadleaf weed, except wild oats, in field peas. Dr. Kanwar informed that integrated management of aphid had been recommended on rapeseed and mustard crops based on monitoring of aphid population on the basis of economic threshold (ETH) values. With this method it had been possible to reduce the number of sprays to 1 or 2 from 3 to 5 sprays. The aphid management using ETH values was more economical. It ensured need based application of toxic insecticides on mustard crop and will also help reducing hazards to human and cattle health, toxicity to natural enemies and insect pollinators and environmental pollution, he added.

News from Abroad

Managerial Effectiveness Study

Within the framework of its new Medium-Term Plan (1990-95), the International Institute for Educational Planning is launching a research project concerned with the managerial effectiveness of higher educational institutions. The project, which will have special reference to developing countries, aims at learning practical lessons about ways of improving the efficiency and the utilization of resources of these institutions.

The research will be based on selected case studies, carried out to identify the factors and strategies associated with successful innovation and change. The methodology of the case studies will also be aimed at showing the obstacles and problems to be overcome.

Several types of innovation and change have been identified as potential candidates for study:

(i) Changes in the organization of institutions.

- New forms of decision-making structures and information flows.
- The merger of separate institutions, departments or units.
- The abolition/closure of parts of an institution.

(ii) Changes in financial management and resource allocation.

- Diversification of funding sources.
- Changes in funding mechanisms (new forms of funding, changes in the balance between the block grant and the specific or earmarked grant, or changes in internal financial management).

(iii) Changes in teaching methods and delivery systems.

(iv) Changes in staff management, including staff development, recruitment and promotion procedures.

(v) Changes in the organization or funding of development activities.

Asia-Australia Science Institute

The University of New South Wales (UNSW) is to embark on one of the biggest developments in its history with the establishment of a major international centre, the Asia-Australia Institute.

Aimed directly at leadership groups in industry, commerce and government in the Asia-Australia region, UNSW will become the first university in Australia to undertake such a project.

The institute, as well as an Institute for Advanced Engineering and Science, will be housed with Unisearch Ltd. (the university's research and development company) in the proposed Kensington Complex. Preliminary estimates are that upto $30 million may be required for the Kensington Complex by completion.

The institute will have two main functions. First, it will develop distinctive networking programmes unprecedented in Australia and genuinely regional in scope, including a "flagship" programme aimed directly at the leadership groups in industry, commerce and government from participating countries. Second, in collaboration with a wide range of corporate and institutional partners, it will develop educational and training programmes dedicated to the strengthening of the regional community.

The "flagship"programme will be an Asia-Australia Leadership Forum that will draw people from throughout the region with the potential in subsequent years to be running political parties, governments, government departments or defence forces, or advancing to chief executive officer status in commerce, industry or education.

In the Institute for Advanced Engineering and Science, there will be the faculties of Applied Science, Biological and Behavioural Sciences, Engineering and Science. It will provide the optimum environment for potential innovations arising from research to be commercialisation.

It will house advanced analytical and computer equipment and support services, and through Unisearch Ltd., will have access to entrepreneurial advice and sources of venture capital.

News from UGC

JRF, Lectureship Eligibility Tests Results

The University Grants Commission conducted the tests for JRF/ eligibility for Lectureship, 1989 on 24th December, 1989 and 29th April, 1990. The UGC has been holding JRF test regularly since 1984; however, the tests for eligibility for lectureship were held for the first time in 1989. The total number of the candidates registered for these tests were 48163, the number of candidates appeared in the tests was 37131 and out of these, 1017 have been declared qualified for the award of JRFs who are also declared qualified for eligibility tests for lectureship and 1326 candidates have been declared qualified eligibility test for lectureship only.

Video Library

The University Grants Commission has approved a plan for setting up a video tape and media library at the Jawaharlal Nehru University Campus in New Delhi to house over 14,000 tapes of non-broadcast undergraduate video course lectures and Master tapes produced by 13 Educational Media Research Centres (EMRCs) and Audio-Visual Research Centres (AVRCs) for the Countrywide Classroom Programme.

The availability of such a large number of Video tapes has necessitated the creation of adequate storage facility with proper environment in order to preserve the quality of these tapes for a minimum of four to five years and also to ensure a quick and easy access to the programmes whenever required.

The proposed library will also house main computer with three terminals for librarian, programmer, and library users. It will also provide Card Catalogue System service and adequate space for cassette and projection previews.

Communication

Community Colleges– Relevance to Indian Experience

Sir,

This is in response to the article by Mrs. Purnima Mathur and Mr. S.S. Mathur on "Community and Junior Colleges in the United States" in *University News*, dated May 21, 1990.

I am thankful to Mrs. and Mr. Mathur for taking interest in issues from which India has a few things to avoid and many a thing to learn and adapt, but sorry to note that its relevance in Indian context is missing in the article.

First, the Community College System operates in parallel to the university. In our context, we cannot afford this kind of double parallel system of higher education. Second, the community colleges are endowed with luxurious facilities— buildings, playgrounds, radio and television, computerised learning system, laboratories and workshops because of affluence of U.S. society. The colleges have no residential facilities, since students drive in their own cars. All this can have no application to our country of limited resources.

However, many a thing of this system are to be picked up to improve our own system of education. First, is the outreach of the community colleges to those who cannot afford full time college education or those whose education has been interrupted after high school. In our country efforts should be made to reach the people who have hitherto been denied education. Second, the community colleges assess the needs of the community it serves and then offers training programme needed for the acquisition of skills that will enable individuals to find employment in the community. This is exactly what we need today to incorporate in our system and it is a messege for our college system. Third, the community colleges have a measure of autonomy and freedom in admissions, evaluation and curricullm construction etc. If these facets could become part of our college system, then only our college system will be more relevant and agalitarian in its approach.

Yours Sincerely
Dhaneswar Hari Chandan
Doctoral Fellow,
Centre for Educational Studies,
Indian Institute of Education,
Kothrud, Pune-411029.

AIU Library & Documentation Services

One of the important functions of the Association of Indian Universities is to act as clearing house of information on higher education in the country. Towards this end the AIU Library is engaged in collection building and developing instruments for the dissemination of research information. Over the years a valuable collection of books and documents on different aspects of higher education has been acquired.

The Library has also developed Bibliography of Doctoral Dissertation as an effective tool in the dissemination of research information. Retrospective bibliographies covering the period 1857–1970 and 1970–75 were the first to appear. Effective 1975, however, the bibliography is issued annually in two volumes. One volume deals with Natural and Applied Sciences while the other records doctoral degrees awarded in Social Sciences and the Humanities. In addition to the normal bibliographical details like the name of the Research Scholar, the title of the thesis, years of registration for and award of the degree, and the name of the University accepting the thesis for award of a doctoral degree, the bibliography also gives name and complete address of the supervising teacher and an availability note that seeks to inform whether a copy of the dissertation is available for consultation and use in the University Library/Department or Registrar's Office.

The columns 'Theses of the Month' and 'Research in Progress' are intended to cut out the time lag between the receipt of information and its inclusion in bibliography. Such Universities as are not sending us regular information in respect of Doctoral Theses accepted and research scholars enrolled are welcome to make use of these columns.

The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities.

HUMANITIES

Philosophy

1. Chattopadhyay, Pratip Kr. *Modernization of industrial workers: A profile of their personality and traits*. Burdwan. Prof. M.K. Bhadra, Department of Philosophy, University of Burdwan, Burdwan.

2. Christanandam, Thota. *Humanistic trends in the philosophy of Mahatma Gandhi: A study*. Andhra.

3. Jain, Hemant Kumar. *Bhattakalankrit lagheeystrya: Ek darshnik vivechan*. BHU. Dr. Kamlesh Kumar Jain.

4. Krishnan Nair, P.R. *The concept of self in the Upanishads and modern psychology*. Osmania.

5. Malik, Neela. *The concept of abhava*. Delhi.

6. Ramachandra Rao, S. *Critical inquiry into the impact of unconscious and ideology of Freud and Marx*. Osmania.

7. Sengupta, Krishna. *A study of Sri Aurobindo's and B.G. Tilak's interpretations of the Gita*. NBU.

Fine Arts

Drawing & Painting

1. Agrawal, Madhu Prasad. *Marwar school of painting*. BHU. Dr. Kalyan Krishna.

Language & Literature

English

1. Balwani, Priti. *Thematic analysis of Robert Frost's poetry*. Devi Ahilya. Prof. R.N. Sharma, C/o Jagdish Rajguru, Scheme No. 59, IDA Quarters, Nai Sabzi Mandi, Indore.

2. Bhattacharya, Dinabandhu. *Sarojini Naidu and her poetry*. NBU.

3. Dubey, Sharda. *The novels of Anita Desai: A thematic study*. BHU. Dr. J.B. Mishra.

4. Kulkarni, B.R. *The essay in Indian writing in English: A critical survey*. Gulbarga. Dr. G.S. Balarama Gupta, Prof. and Chairman, Department of English, Gulbarga University, Gulbarga.

5. Mattu, Sunita. *The poetry of Philip Larkin: A sociological study*. BHU. Prof. R.S. Sharma, Reader, Department of English, Banaras Hindu University, Varanasi.

6. Pratima, Nannaparaju. *Becket theme in the plays of Tennyson, Eliot, Fry and Anouilh*. Andhra.

7. Ramamoorthy Iyer, N. *The moral vision of William Golding*. BHU. Dr. R.K. Shukla, Reader, Department of English, Banaras Hindu University, Varanasi.

8. Shaikh Mohammed Ismail Abdulrahim. *A study of the novels of Rumer Godden*. Shivaji. Prof. S.K. Desai, Vice-Chancellor, Kuvempu University, Shimoga.

9. Tripathi, Shyam Kishor. *Thematic patterns in the novels of Nathaniel Hawthorne*. HS Gour. Dr. H.S.S. Bais, Department of English, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

German

1. Chauhan, Man Mohan Singh. *Die Sozialen perspekti ven im werk Theodor Storms und Yashpals*. BHU. Prof. S.N. Upadhyaya.

Sanskrit

1. Bandyopadhyay, Bibekananda. *Tulanamulak alochanay Ramayana-O-Mahabharata*. Burdwan. Pandit Anantalal Thakur, Former Lecturer, Department of Sanskrit, University of Burdwan, Burdwan.

2. Chatak, Nibha. *Studies in some problems of the Prasanna Raghana*. Calcutta.

3. Jalote, Bina. *Shukla Yajurveda pratisakhya evam Chaturdhyayika ka tulanatmak adhyayan*. BHU. Dr. (Miss.) Vimla Karnatak.

4. Lahiri, Sukriti. *Sanskrit sahitye rupak (Allegorical) natak o prabodh-chandraodaya*. Visva-Bharati.

5. Mishra, Mrinalini. *Mahakavi Magh evam Ayurveda*. BHU. Dr. S.K. Dixit.

6. Ojha, Leshma. *Jaidev ke Gitagovinda mein sangit-samagriya: Ek parisheelan*. BHU. Dr. R.P. Dwivedi, Reader, Department of Sanskrit, Banaras Hindu University, Varanasi.

7. Pandey, Om Prakash. *Balmiki Ramayan: Ayodhya Kand ka sahityik parisheelan*. BHU. Dr. J.G. Ratate.

8. Pandey, Om Prakash. *Prachin Bharatiya evam adhunik Sanskrit-shikshan: Ek sameekshatmak mulyankan*. BHU. Prof. V.K. Verma, Department of Sanskrit, Banaras Hindu University, Varanasi.

9. Pandey, Pushplata. *Vidya Parinayanam ka sameekshatmak adhyayan*. BHU. Dr. R.P. Dwivedi, Reader, Department of Sanskrit, Banaras Hindu University, Varanasi.

10. Raghaw Sharan. *Shrimadbhagawat Mahapuran mein darshan tatva vimarsh*. BHU. Dr. Trinath Sharma.

11. Singh, Suman. *Sgatoath Brahman kaleen Bharat*. BHU. Dr. K.P. Singh, Reader, Department of Sanskrit, Banaras Hindu University, Varanasi.

12. Singh, Suman Kumari. *Acharya Shankar ka stotra sahitya: Ek sameekshatmak adhyayan*. BHU. Prof. B. Bhattacharya, Department of Sanskrit, Banaras Hindu University, Varanasi.

13. Tripathi, Avinash Nath. *Shaiva darshan kee sadhana paddhti*. BHU. Dr. U.C. Dubey.

Hindi

1. Bhatt, Kiritkumar Ratilal. *Patrakar Mahatma Gandhi*. Bhavnagar. Dr. S.S. Majithia, Prof. and Head, Department of Hindi, Bhavnagar University, Bhavnagar.

2. Dharam Chand. *Nai kavita mein pragatisheel chetna*. Delhi.

3. Dholia, Zohra. *Rajasthan aur Kutchhi lokgeet: Tulnatmak adhyayan*. SNDT. Dr. Urvashi Surti.

4. Dolma, Pempa. *Nai kavita ke samajik sandarbh*. H.P.

5. Kameswari, G.V. *Hindi tatha Telugu lokgeeton mein samajik chetana*. Osmania.

6. Lallan Singh. *Jainendra Kumar aur Anita Desai ke upanyason ka tulnatmak adhyayan*. BHU. Dr. A.K. Tripathi.

7. Mehrotra, Pammi. *Adhunik Hindi lehikayon ke katha sahitya mein nari va uske vividh ayyam*. SNDT. Dr. (Smt.) Uma Shukla, Reader, Department of Hindi, Shreemati Nathibai Damodar Thackersey Women's University, Bombay.

8. Misra, Ahilya. *Vidyapati Padavali ka shailitatwik adhyayan*. Osmania.

9. Neelakantan Nampoori, K.N. *Comparative study of the trends of modern Hindi and Malayalam short stories*. CUST. Dr. A. Aravindhakshan, Reader, Department of Hindi, Cochin University of Science and Technology, Cochin.

10. Pathak, Jagdish Prasad. *Dinkar kee Urvashi mein prem ka samajik sandarbha*. BHU. Dr. (Mrs.) Kumud Prabha Srivastava.

11. Rai, Rajendra Prasad. *Sursagar mein vastuvarnan*. BHU. Dr. S.P. Singh, Prof., Department of Hindi, Banaras Hindu University, Varanasi.

12. Rama Devi. *Sathottari Hindi mahila upanyaskaron ke upanyason mein teesara vyakti*. Osmania.

13. Satyanarayana, M. *Premchand ke katha sahitya mein garibi kee samasyayen*. Osmania.

14. Singh, Manorama. *Bachchan ka gadya sahitya*. BHU. Dr. Indumati Singh.

Urdu

1. Hashmi, Haneef Saif. *Rasheed Ahamed Rasheed: Hayat aur adabi khidmat*. Gulbarga. Dr. M.A. Razzak Fareequi, Chairman, Department of Urdu, Gulbarga University, Gulbarga.

2. Khan, Reyazul Haque. *Urdu kee taraqqi mein Banaras ka hissa*. BHU. Prof. H.C. Nayyar, Department of Urdu, Banaras Hindu University, Varanasi.

Bengali

1. Bandyopadhyay, Manjusri. *Dwitya yuddattar mahila kathasahityik-o-tader jogat*. Calcutta.

2. Ghosh, Chandra. *Binao Satabdir Bangla chotogalpe samaj bidroha, 1901-1980*. Calcutta.

3. Pal, Haren Chandra. *Rabindra kabye bishes bishes kalpana bhangir abrithi-o-punarabrithi*. Calcutta.

Marathi

1. Pasarkar. *Manmathshivling yanchya paramrahsya ya granthayachya sarvageen chikitsak abhyas*. Shivaji. Dr. N.J. Phadkule, Vivek, 10-Vidyanagar, Uttar Sadar Bazar, Solapur.

2. Patil, Vimal Keshavrao. *Marathi samajik natakani nandlele istriyanche prashan, isvi 1857 te 1920.* Shivaji. Dr. L.R. Nasirabadkar, Department of Marathi, Shivaji University, Kolhapur.

Gujarati

1. Meer, Rasheedbhai Kamalbhai. *Asthetics of Gujarati gazals after 1942.* Baroda.

2. Nayak, Malati Chandulal. *Girdhar krit Ramayan: Ek abhyas.* Bhavnagar. Prof. T.V. Parmar, Principal, Samaldas Arts College, Bhavnagar.

Persian

1. Zaidi, Syeda Akhter. *Life and works of Malik Qummi.* Osmania.

Arabic

1. Muhammed Ishaq, P. *Abbas Mahmud Al Aqquad and his role in the revival of Arabic poetry.* Calicut. Dr. E.K. Ahamed Kutty, Prof., Department of Arabic, University of Calicut, Calicut.

Telugu

1. Hari Das. *Telugulo yatra charitralu.* Osmania.

2. Kanaka Durga, Kondru. *Ravuri Bharadhvaja chinnakathalu: Samagra sameeksha.* Andhra.

3. Krishna Murty, Sripada. *Sri Krishna Ramayanamu samagra sameeksha: Author Late Kavisarvabhowma Sripada Krishna Murty Sastry.* Andhra.

4. Nalini Reddy, D. *Telugulo Hasya navalalu.* Osmania.

5. Sai Subba Raju, Kalidindi. *Prabandha srungaram.* Andhra.

6. Sarada, Donkada. *Harikatha prakriya: Samajika prayojanamulu.* Andhra.

7. Suguna, N. *Annamayya pada sahityamulu stree.* Osmania.

8. Visweswara Rao, Nanduri. *Harichandra Nalopakhyana samagra: Sameeksha.* Andhra.

Geography

1. Chandel, Rajendra Singh. *Agricultural change in Konch Block, District Jalaun, U.P.* BHU. Dr. V.R. Singh, Reader, Department of Geography, Banaras Hindu University, Varanasi.

2. Khan, Mohd. Firoz. *Urban influence on rural fertility differentials: A case study of Koil Tehsil, District Aligarh, U.P.* Jamia. Prof. Qazi Mohammad Ahmad, Head, Department of Geography, Jamia Millia Islamia, New Delhi.

3. Kumar, Chandra Shekher. *Geographical study of environmental problems and development of South Mirzapur region.* BHU. Prof. S.L. Kayastha.

4. Malik, Umasankar. *Industrial development in the Western part of the Calcutta Metropolitan District. A study in economic geography.* Burdwan. Prof. M.R. Choudhuri, Prof. (Retd.), Department of Geography, University of Burdwan, Burdwan.

5. Rawat, Swapna. *Agricultural land use and nutritional deficiency diseases in Jhansi and Lalitpur Districts of Uttar Pradesh.* Jamia. Prof. Qazi Mohammad Ahmad, Head, Department of Geography, Jamia Millia Islamia, New Delhi and Dr. S. Sajid Husain, Reader, Department of Geography, Jamia Millia Islamia, New Delhi.

6. Singh, Ashok Kumar. *Janpad Gazipur mein bhumi jansankhya: Ek bhougolik adhyayan.* BHU. Dr. N. Kaushik.

7. Yadav, Virendra Vikram. *Agriculture in U.P. Himalaya: Problems, Prospects and planning.* BHU. Prof. V.R. Singh, Reader, Department of Geography, Banaras Hindu University, Varanasi.

History

1. Choubey, Prabha Kant. *The life and times of Jahangir on the basis of Tuzuk-I-Jahangiri.* BHU. Dr. Rajeshwar Pandey.

2. Lakshmidharan, E.N. *History of trade unionism in Kerala since 1947.* Calicut. Dr. P.K. Jose, Prof., Department of History, St. Joseph's College, Devagiri, Calicut.

3. Leena, P.K. *The history of the English East India Company's settlement at Anjengo.* Calicut. Dr. M.P. Sreekumaran Nair, Department of History, University of Calicut, Calicut.

4. Mohanty, Debadutta. *Socio-cultural life of contemporary Orissa based on Dandi Ramayana of Balarama Dasa.* BHU. Dr. (Miss) A. Chattopadhyaya, Reader, Department of History, Banaras Hindu University, Varanasi.

5. Mudhol, Muralidhar Shrinivas Rao. *A technical study of megalithic metal objects.* Baroda.

6. Mukhopadhyay, Manisha. *Indra worship in Ancient India.* Calcutta.

7. Nalawade, Vijay Nanasaheb. *Life and career of Keshavrao Jedhe.* Shivaji. Dr. A.R. Bhosale, Department of History, Shivaji University, Kolhapur.

8. Pandey, Sachchida Nand. *Defence and war in Ancient India from the earliest times to the Gupta period.* Magadh.

9. Rajinipani. *Christian institutions and the evolution of Bangalore Contonment, 1881-1920.* Bangalore. Dr. K. Veerathappa, Head, Department of History, Jnana Bharathi Campus, Bangalore University, Bangalore.

10. Ravindra Kumar. *Archaeology of the middle Gomati Basin with special reference to Sultanpur District, U.P.* BHU. Prof. K.K. Sinha, Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, Varanasi.

11. Roy, Jahnawi Shekhar. *Prashar Smriti: Ek adhyayan.* BHU. Dr. P.N. Singh, Lecturer, Department of Ancient Indian History, Culture and Archaeology, Banaras Hindu University, Varanasi.

12. Sarang, Ankush Tukaram. *External relations of Sawantwadi State.* Shivaji. Dr. V.S. Kadam, Department of History, Shivaji University, Kolhapur.

13. Sarma, Bina Kumari. *Life of women in British Orissa, 1803-1947.* Berhampur. Dr. B.C. Ray, Prof. (Retd.), Department of History, 90 Budheswari Colony, Bhubaneswar.

14. Shipra. *Saltnet kaleen nagariya arthik jeevan, 1206-1414.* BHU. Dr. (Miss.) S. Chattopadhyay.

15. Thyagarajan, Tara. *Political relation between the Gaekwads of Baroda and the Peshwas of Poona, 1707-1818 A.D.* Baroda.

16. Tiwari, Pavan Kumar. *Rewa Rajya kee sarkar aur prashasan, 1918-1948.* HS Gour. Prof. B.N. Sharma, Head, Department of History, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

17. Tripathi, Asha Devi. *Parmar kaleen sthapatya kala ka adhyayan. Bvin shatabadi se 8vin shatabadi tak.* Devi Ahilya. Dr. J.C. Upadhyaya, Govt. Arts and Commerce College, Indore.

18. Upadhyaya, Jiwan. *Development of Sarada script upto 13th century A.D.* BHU. Dr. T.P. Verma, Reader, Department of Ancient Indian History, Culture, and Archaeology, Banaras Hindu University, Varanasi.

19. Vijayalakshmi, Jasti. *Iconometric analysis of images at Gallavalli.* Andhra.

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/Officer to be Contacted
Oct. 2-4, 1990	5th Annual National Convention of Physics Teachers	Themes include Teaching aids in Physics education, Planning of an UG & PG Physics Laboratory Interactions between educational institutions & instrument makers etc.	Gandhi Memorial National College, Ambala Cantt.	Mr. M.K. Sharma, Convener, 5th IAPT Convention, G.M.N. College, Ambala Cantt.-133001 (Haryana)
October 7-13, 1990	National Workshop on Radiochemistry and Applications of Radioisotopes	To popularise the study of nuclear sciences in colleges and universities and to highlight the applications of isotopes in research, industry, agriculture and health, etc.	Ravi Shankar University, Raipur.	Prof. S.G. Tandon, Director of the Workshop & Head, Department of Chemistry, Ravi Shankar University, Raipur-492010.
December 1, 1990	National Symposium on Science and Technology in Ancient India.	Topics proposed to be discussed include Astronomy & Mathematics, Metallurgy, Medicine, Aeronautics, Engineering, Computer Science and Artificial Intelligence.	B.M. Birla Science Centre, Hyderabad	Dr. B.G. Sidharth, Director, B.M. Birla Science Centre, Adarsh Nagar, Hyderabad-500 463
July 21-26, 1991	Seventh International Meeting of University Administrators	Themes to be discussed are: (i) Standards of Professionalism in University Administrations; (ii) International Cooperation; and (iii) The Entrepreneurial University.	Conference of Registrars and Secretaries and Conference of University Administrators of the United Kingdom.	Dr. F.C. Verschoor, Chairman, Organising Committee, Congress Bureau, University of Twente, P.O. Box 217, 7500 AE Enschede, The Netherlands.

MAHATMA GANDHI UNIVERSITY

KOTTAYAM-686 562

NOTIFICATION

No. 6721/90/AII(1)/Admn. **Dated: August 7, 1990.**

Applications in the prescribed form are invited from qualified candidates for appointment to the following teaching posts in the University. The appointment will be governed by the provisions of the Mahatma Gandhi University Act and the Statutes and Ordinances framed thereunder.

Sl.No.	Name of Post	No. of Post	Scale of Pay	Specialisation if any	Reservation if any
1	2	3	4	5	6
SCHOOL OF INTERNATIONAL RELATIONS					
1.	Director/Professor	1	Rs. 4500-7300	—	Open
2.	Reader	1	Rs. 3700-5700	International Political Theory	Open
SCHOOL OF SOCIAL SCIENCES					
3.	Director/Professor	1	Rs. 4500-7300	—	Open
SCHOOL OF CHEMICAL SCIENCES					
4.	Reader	1	Rs. 3700-5700	Physical Chemistry	Ezhava/Thiyya
5.	Lecturer	1	Rs. 2200-4000	Theoretical Chemistry	Open
6.	Lecturer	1	Rs. 2200-4000	Organic Chemistry	Ezhava/Thiyya
SCHOOL OF BASIC MEDICAL SCIENCES					
7.	Lecturer	1	Rs. 2200-4000	Microbiology	Open
SCHOOL OF BEHAVIOURAL SCIENCES					
8.	Reader	1	Rs. 3700-5700	Spl. Education (Clinical/Applied Psychology)	Open
9.	Reader	1	Rs. 3700-5700	Special Education	Ezhava
10. to 16.	Lecturer (1 post each with the following specialisations) Special Education for Visually handicapped Special Education for Auditorily handicapped Special Education for Mentally retarded Special Education for Clinical and Applied Psychology Special Education for Behavioural Nursing Special Education for Medical Sciences Special Education for Statistics and Research Methodology	7	Rs. 2200-4000		
SCHOOL OF MATHEMATICS AND COMPUTER SCIENCE					
17.	Director/Professor	1	Rs. 4500-7300		Open
SCHOOL OF INDIAN LEGAL THOUGHT					
18.	Director/Professor	1	Rs. 4500-7300		Open
SCHOOL OF MASS COMMUNICATION					
19.	Director/Professor	1	Rs. 4500-7300		Open
SCHOOL OF DISTANCE EDUCATION					
20.	Director/Professor	1	Rs. 4500-7300		Open
21.	Director, Examination Reforms	1	Rs. 4500-7300	(Subject to U.G.C. assistance for the post. Post is temporary for a period of 3 years)	Open

In the case of the Lecturers posts in the School of Behavioural Sciences also communal reservations as provided for in the Kerala State Subordinate Service Rules (Section 14, Part 11, General Rules) will be observed while making appointments. In the case of posts reserved for a particular community, if suitable candidates are not available from that community, the vacancy will be dereserved and appointments made from other reserved communities or on open basis.

Qualifications, Age, etc.

U.G.C. norms shall be applicable to all cases of appointments and career advancements, the details of which can be obtained from the Office of the University along with the prescribed application forms.

Application forms and other details can be had from the Office of the University on request by post or in person on production of an SBT pay-in-slip for Rs. 2/- remitted under Mahatma Gandhi University Fund Account and in the case of persons residing outside the state by means r a crossed postal order for Rs. 2/- drawn in favour of the Finance Officer (payable at Athirampuzha). Those who want to get the application y post shall send a self-addressed envelope of size 27 cmx12 cm affixing postal stamps for Rs. 3/- along with their requests.

Candidates who had applied for the posts of Reader (Physical Chemistry) and Lecturer (Theoretical Chemistry) as per this office notification No. 6721/88/AII(4)/Admn. dated 15-5-1989 need not apply again. Their applications will be considered if found suitable as per this notification.

The last date for receipt of completed applications in the University office is **19.9.1990.**

Office of the
Mahatma Gandhi University,
Priyadarshini Hills,
Athirampuzha P.O.
KOTTAYAM-686 562.

Dr. M.C. Chacko
REGISTRAR

SHIVAJI UNIVERSITY
KOLHAPUR.

Advertisement No. 2 of 1990

Applications are invited for the following posts in the University Post-Graduate Departments at Kolhapur and Solapur.

PROFESSOR: (4 Posts): One each in (1) **Physics** for Solapur Centre (Applied Industrial Electronics), (2) **Political Science** (Public Administration) (ST), (3) **English** for E.L.T. Centre (upto 31-3-1992), (4) **Library Science** (Library and Information Science).

(5) **DIRECTOR:** (1 Post): in Adult and Continuing Education and Extension Work Department upto 10-1-1996.

READER: (10 Posts): One each in (6) **Chemistry** (Inorganic Chemistry), (7) **Physics** (Electronics) (SC), (8) **Physics** (Solid State Physics/Theoretical Physics), (9) **Botany** (Mycology and Plant Pathology upto 20-5-1991), (10) **Geography** (ST), (11) **Economics** (Industrial Economics/International Economics/Econometrics/Demography), (12) **History** (ST), (13) **English** (Commonwealth Literature/Indian English/Translation Studies/Contemporary Literary Theory) (upto 21-5-1991), (14) **Marathi** (i) Modern Marathi Literature, (ii) Sociology of Literature (SC), (15) **Journalism and Communication Science.**

LECTURER: (11 Posts): One each in (16) **Physics**, (17) **Physics** (ST), (18) **Physics** for Solapur Centre (upto 31-5-1991, (19) **Zoology** (SC), (20) **Botany** (Upto 20-5-1991), (21) **Statistics** (upto 23-5-1991), (22) **Political Science**, (23) **Sociology**, (24) **English** (SC), (25) **Fine Arts** (Dramatics) (D.T.V.J.), (26) **Journalism and Communication Science** (ST).

Note:

(i) If suitable qualified candidates belonging to respective reserved categories are not available, the candidates from remaining categories of backward classes will be considered for the appointments.

(ii) If suitable qualified candidates belonging to reserved categories are not available, then the candidates from open category will be considered for appointment for one academic year only.

(iii) Appointments against Post at Sr. 3,5,9,13,18,20 and 21 may be continued.

(1) Post at Sr. No. 3: Preference will be given to candidates who have experience of (i) Post-doctoral research in E.L.T./Linguistics and production of teaching material, or innovations in teaching methods, (ii) successfully guidance of ELT/Linguistics students at doctoral level.

PAY SCALES: Professor/Director Rs. 4500-150-5700-200-7300. Reader: Rs. 3700-125-4950-150-5700. Lecturer: Rs. 2200-75-2800-100-4000.

QUALIFICATIONS:

Professor: An eminent scholar with published work of high quality, actively engaged in research.

About ten years' experience of teaching and/or research. Experience of guiding research at Doctoral level, OR an outstanding scholar with established reputation, who has made significant contribution to knowledge.

Director: (i) A person with outstanding contribution in the field of Adult, Continuing Education and Extension Work or a person without at least 10 years experience in his/her discipline and 3 to 5 years experience in Adult and Continuing Education and Extension Work.

(ii) Ph.D. in his/her discipline preferably in an area of Social Sciences or an area allied to Adult Education or equivalent research work or publication to his/her credit.

(iii) Experience of guiding research students will be desirable.

Reader: Good academic record with a Doctoral Degree or equivalent published work. Evidence of being actively engaged in (i) research or (ii) innovation in teaching methods or (iii) Production of Teaching Materials. About five years' experience of teaching and/or research provided that at least three of these years were as lecturer or in an equivalent position. This condition may be relaxed in the case of candidates with outstanding record of teaching/research.

Lecturer: Master's degree in the relevant subject with at least 55% marks, or its equivalent grade at M.A./M.Sc. or equivalent Examination; and also good academic record. Ph.D. or M.Phil. degree in the relevant subject is desirable.

Prescribed application forms (TEN copies) can be had from the University Office. Desirous candidates are requested to send D.D. of Rs. 25/- only mentioning the Sr. No. of the post indicated in the advertisement for which they send their application.

TEN copies of application along with necessary enclosures attached to each copy of the application should reach THE REGISTRAR, SHIVAJI UNIVERSITY, VIDYANAGAR, KOLHAPUR-416 004 on or before 15-9-1990.

Kolhapur.
Date: 10-8-1990.

Dr. B.P. Sabale
REGISTRAR

SARDAR PATEL UNIVERSITY
VALLABH VIDYANAGAR-388120.
(GUJARAT)

NOTIFICATION NO. EST/3/1990-91
DATED: 9-8-1990.

Application are invited in the prescribed forms which can be had from the University Office on payment of Rs. 20/- in cash or by Indian Postal Order for the following posts so as to reach the undersigned on or before 31-8-1990.

Sr. No.	Name of the Post	No. of Posts
PROFESSOR (Pay Scale: Rs. 4500-7300)		
1.	Physics (X-Rays)	1
2.	Electronics	1
3.	Sanskrit	1
4.	Technical Officer (For University Science & Instrumentation Centre)	1

All the posts carry the benefits of D.A., G.P.F., Gratuity and Pension as per University rules.

Detailed qualifications will be supplied alongwith the prescribed application forms.

Note:

The candidates who have applied for any of the posts earlier in response to Advertisement EST/1/1990 issued on 1.5.90, need not apply again.

Niranjan Upadhyaya
REGISTRAR

A.I.U. PUBLICATIONS

		Rs.
1.	Universities Handbook—1989	600.00
2.	Equivalence of Foreign Degrees	180.00
3.	Handbook of Engineering Education-1988	50.00
4.	Handbook of Medical Education	50.00
5.	Handbook of Management Education	30.00
6.	Handbook of Agricultural Education-1986	40.00
7.	Handbook of Distance Education	In Press
8.	Association of Indian Universities-1925-75	50.00
9.	Association of Indian Universities-1925-85	100.00
10.	New Technologies in Higher Education (HB)	120.00
	(PB)	80.00
11.	Studies in Distance Education	20.00
12.	Universities and Research	45.00
13.	University Finance—A Statistical Profile II	75.00
14.	State Funding of Universities	50.00
15.	Elite in the Making	40.00
16.	Economics of College Education—A Study of Hindu College, Delhi	30.00
17.	Educational Statistics at a Glance	75.00
18.	Education and Economic Development	25.00
19.	Report of the Task Force on Autonomous Colleges and Departments	60.00

BIBLIOGRAPHY OF DOCTORAL DISSERTATIONS

20.	Social Sciences	50.00
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22.	Physical Sciences–1857-1970	125.00
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24.	Social Sciences & Humanities-1970-75	150.00
25.	Physical Sciences-1970-75	120.00
26.	Biological Sciences-1970-75	120.00
27.	Social Sciences & Humanities–1975-76	50.00
28.	Natural & Applied Sciences-1975-76	90.00
29.	Social Sciences & Humanities–1976-77	70.00
30.	Natural & Applied Sciences-1976-77	120.00
31.	Social Sciences & Humanities–1977-78	90.00
32.	Natural & Applied Sciences-1977-78	100.00
33.	Social Sciences & Humanities–1978-79	90.00
34.	Natural & Applied Sciences-1978-79	125.00
35.	Social Sciences & Humanities–1979-80	90.00
36.	Natural & Applied Sciences-1979-80	130.00
37.	Social Sciences & Humanities–1980-81	120.00
38.	Natural & Applied Sciences-1980-81	180.00
39.	Social Sciences & Humanities–1981-82	150.00
40.	Natural & Applied Sciences-1981-82	225.00
41.	Social Sciences & Humanities–1982-83	160.00
42.	Natural & Applied Sciences-1982-83	250.00
43.	Social Sciences & Humanities–1983-84	180.00
44.	Natural & Applied Sciences-1983-84	320.00
45.	Social Sciences & Humanities–1984-85	200.00
46.	Natural & Applied Sciences-1984-85	320.00
47.	Social Sciences & Humanities–1985-86	200.00
48.	Natural & Applied Sciences-1985-86	320.00

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49.	Unfair Means in University Examinations—A Study	50.00
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52.	Conduct of Examinations	35.00

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53.	Towards Better Questions	7.00
54.	Monograph on Grading	5.00
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56.	Monograph on Internal Assessment	10.00
57.	Monograph on Test & Item Analysis	17.00
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59.	Monograph on Practical Examinations	9.00
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61.	Research Abstracts-Part I, II & III	Each 6.00
62.	Research Abstracts-Part IV	14.00
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83.	Political Science	35.00
84.	Foods & Nutrition	25.00
85.	Sociology	45.00
86.	English Language & Literature	30.00
87.	Physiology	45.00
88.	Pharmacology	35.00
89.	Automobile Engineering	35.00
90.	Law of Contracts	45.00
91.	Anatomy	60.00
92.	Constitutional Law	35.00
93.	Electrical Power System	75.00
94.	Zoology *(Hindi Script)*	100.00
95.	Chemistry *(Hindi Script)*	160.00
96.	History *(Hindi Script)*	70.00
	Postgraduate level	
97.	Mathematics	85.00

SPORTS & PHYSICAL EDUCATION

98.	Physical Fitness & Sports Standards in Universities	50.00
99.	Handbook of Rules & Regulations for Inter-University Tournaments	20.00
100.	Gymnastic Exercises for Men & Women	Each 5.00

BOOKS ALSO AVAILABLE WITH LEADING BOOKSELLERS IN THE COUNTRY

Address Enquiries to: **Under Secretary** *(Publications)*

Association of Indian Universities

AIU House, 16 Kotla Marg, New Delhi-110 002.
Telephone: 3310059, 3312429, 3313390
Telex: 31-66180 AIU IN GRAM: ASINDU

SHASTRI INDO-CANADIAN INSTITUTE

DEVELOPMENT OF CANADIAN STUDIES IN INDIA

FELLOWSHIPS FOR INDIAN SCHOLARS IN HUMANITIES AND SOCIAL SCIENCES

FOR THE ACADEMIC YEAR 1991-92

CATEGORIES OF FELLOWSHIP

FACULTY ENRICHMENT
FACULTY RESEARCH
GRADUATE STUDENT (DOCTORAL RESEARCH)

Eligibility

FACULTY ENRICHMENT

1. The applicant should be a permanent member of the academic staff of a recognized institution of higher education in India. 2. He/She should provide evidence of interest or involvement in Canadian Studies. This may be demonstrated by courses already given, research undertaken, extra-mural activities or other significant experience such as study in Canada, or active membership in the Indian Association for Canadian Studies.

FACULTY RESEARCH

1. The applicant should hold a permanent faculty position in an Indian academic degree granting institution; or should be a scholar at a research or policy planning institute which undertakes significant work on Canada or Canada-India bilateral relationships.

2. Should hold either a doctorate or equivalent postgraduate qualification.

3. Should be in a position to share his/her research experience on the Canada related topic with other scholars prior to publication.

GRADUATE STUDENT (DOCTORAL RESEARCH)

This programme is for postgraduate students who have completed their course work and are now doing research for their dissertation.

The subject of the dissertation must be related to Canada.

LAST DATE FOR RECEIPT OF COMPLETED APPLICATIONS IS NOVEMBER 15, 1990.

PLEASE WRITE FOR FURTHER DETAILS AND APPLICATION FORM BY SENDING SELF-ADDRESSED Rs. 4.00 STAMPED ENVELOPE (5"x10") TO:

THE RESIDENT DIRECTOR
SHASTRI INDO-CANADIAN INSTITUTE
92, GOLF LINKS, NEW DELHI 110003.

UNIVERSITY NEWS, MONDAY, AUGUST 20, 1990 Regd. No. R.N. 7180/63 Delhi Postal Regd. D(C)1086

SHASTRI INDO-CANADIAN INSTITUTE

92, GOLF LINKS, NEW DELHI 110003

SOCIAL SCIENCES & HUMANITIES FELLOWSHIPS FOR THE ACADEMIC YEAR 1991-92

Two annual fellowships have been established for Indian scholars in Social Sciences and Humanities to do research/study at a designated university in Canada for one academic term. The candidate should be a scholar at the middle level of his/her career stream who:

(a) has proven ability for reserch and teaching;
(b) will concentrate on a specific project of study in Canada from a comparative perspective on Canada-India topics;
(c) has a reasonably clear plan of study during the visit indicating the intention to continue work in the same area on return to India in order to enhance the knowledge of Canada within the Indian academic community; and
(d) is willing to take up the fellowship, if offered, and undertake to leave for Canada during September, 1991.

The Institute will bear the cost of travel of the selected scholar to and from the designated university (shortest route, economy/excursion return airfare). In addition, the Institute will pay a maintenance allowance of C$ 1,500.00 p.m. for a maximum period of four months and a sum of C$ 500.00 for purchase of books and personal effects.

FELLOWSHIPS FOR WOMEN IN DEVELOPMENT FOR THE ACADEMIC YEAR 1991-92

Applications are invited from Senior Indian scholars for two fellowships for a lecture and research programme to help develop expertise in the area of Women in Development at selected Canadian Universities. These senior visiting fellowships are to be effective from September 1, 1991 for one academic term (13 weeks). The candidates: (1) should be established scholars in India with demonstrated ability for research and lecturing on Women in Development, (2) will be expected to assist individuals or groups in the development of research expertise on Women in Development in appropriate Canadian universities, (3) should be willing to take up the fellowship, if offered, and undertake to leave for Canada by September 15, 1991.

The Institute will bear the cost of travel (excursion return air fare) of the selected candidates. In addition, the Institute will pay a maintenance allowance of C$ 2,500.00 per month for a maximum period upto four months, and a sum of C$ 500.00 for the purchase of books and personal effects.

Applications, which must include a detailed bio-data, research proposal and list of lecture topics (7 copies each), must reach the Shastri Indo-Canadian Institute, 92 Golf Links, New Delhi 110003 not later than November 15, 1990.

Particulars of fellowships with application form can be obtained by sending self addressed Rs. 4.00 stamped envelope (5"x10") to:

THE RESIDENT DIRECTOR
SHASTRI INDO-CANADIAN INSTITUTE
92, GOLF LINKS, NEW DELHI 110003.

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ISSN [illegible]

University News

MONDAY, AUGUST 27, 1990 Rs. 2.50

Osmania Varsity Convocation

SRI KRISHNA KANT
SMANIA UNIVERSIT
68 th ANNUAL CONVOCATION
13 th JULY, 1990

L to R: Dr. Raja Ramanna, Minister of State for Defence, Govt. of India, who was awarded D.Sc. Degree *(Honoris Causa)* and delivered the Convocation Address, Shri Krishna Kant, Governor of Andhra Pradesh and the Chancellor of the Osmania University and Prof. T. Navaneeth Rao, Vice-Chancellor.

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited **upto 25th September, 1990** for the following posts at the Council's Institutes/Centres:

1. AT THE REGIONAL MEDICAL RESEARCH CENTRE, DIBRUGARH

Deputy Director (One post) Scale of pay of Rs. 4500-150-5700

Qualifications & Experience: Essential: (a) MBBS. (b) 12 yrs. research/teaching experience in Microbiology, Community Medicine, General Medicine, Pathology OR M.D./Ph.D. in Microbiology, Community Medicine/General Medicine, Pathology with 10 yrs. research/teaching experience. (c) Original work as evidenced by publications.

Desirable: Research experience in medical virology, Oncogeneses Malariology.

Job Requirements: The incumbent would be required to (A) Plan, execute and monitor research Projects on local Health Problems. (B) Assist the Director in the administrative work and planning and execution of various epidemiological programme which are being undertaken at the Centre. (C) To organise training programme for human resource development.

2. AT THE INSTITUTE OF IMMUNOHAEMATOLOGY, BOMBAY

Deputy Director (One post) – Scale of pay of Rs. 4500-150-5700

Qualifications & Experience: Essential: (a) MBBS or Ist class M.Sc. in Microbiology/Biochemistry/Life Sciences with specialization in Genetic Engineering. (b) 12 yrs. research/teaching experience in above fields as related to immunohaematology **OR** M.D. in Pathology/Microbiology/Medicine **OR** Ph.D. in Microbiology/Biochemistry/Biotechnology with 10 yrs. research/teaching experience in the above fields as related to Immunohaematology. (c) Original work as evidenced by publications.

Job Requirements: The incumbent will be required to carry out (A) Research programmes of the Institute in co-ordination with different scientific divisions. (B) in depth research in some facets of Immunohaematology and (C) Any other duty assigned by the Director.

3. AT THE REGIONAL MEDICAL RESEARCH CENTRE FOR TRIBALS, JABALPUR

Assistant Director (One post) – Scale of pay of Rs. 3700-125-4700-150-5000

Qualifications & Experience: Essential: (a) MBBS with 12 yrs. experience in research/teaching in the field of community medicine with substantial research contribution in the field of epidemiology/community medicine. (b) 10 yrs. research/teaching experience for candidates possessing M.D. in Community medicine. (c) Original work as evidenced by publications.

Job Requirements: (A) To participate in planning and implementation of research in the field of Community medicine with particular emphasis to delivery of health care services to the tribals, survey to detect health problems, formulate operational interventions, and action oriented research. (B) Multicentric disciplinary studies as well as collaborative studies at the institutional, state and national levels in various aspects of tribals health.

AGE: Below 50 years for the posts of Dy. Director and below 45 years for the post of Assistant Director. SC/ST candidates allowed relaxation in accordance with Govt. of India Rules.

Allowances as per Central Govt. rules are admissible on the above pay scales. Benefits of pension admissible. Private practice is not allowed. However, NPA as per rules of the Council is admissible to medical graduates only.

Candidates called for interview will be paid Ist class rail fare by shortest route, on production of documents.

Applications from employees working in Central/State Govt. Deptt., Public Sector Undertaking and Govt. funded research agencies must be forwarded through proper channel.

Application forms can be obtained from the Office of the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box. No. 4508, New Delhi-110 029. Forms duly completed should be sent to the Director General, Indian Council of Medical Research, Ansari Nagar, Post Box No. 4508, New Delhi-110 029 with a crossed IPO for Rs. 8/- payable to the Director General, ICMR, New Delhi. SC/ST candidates are exempted from this payment.

Incomplete and late application or without postal orders will not be entertained. The name of the post and of the Institute/Centre must be indicated in the Application form.

Separate application form should be submitted for each post with crossed IPO for Rs. 8/- and for each Institute/Centre.

UNIVERSITY NEWS

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Editor :
SUTINDER SINGH

Standards in Higher Education

Appropriate Strategies

H. Francis Soundararaj*

The expressions, "standard" and "higher education" need contextualisation to be specific. "Standard" is often spoken of as something used as "a test of quality for a required degree of excellence." The test, especially in education, may comprise the measure of mental ability adequate to pursue independently any academic activity (such as argument to establish a thesis, comparison of given data and their evaluation, conducting a study, expounding a difficult concept, etc.). Some others may apply an economic criterion and find a standard in terms of cost analysis of education thereby categorizing humanities on a lower scale than sciences which are far more productive and immediate-result oriented. Still others may apply a social criterion and call that education which brings about the betterment of society or social transformation as high quality education. Yet others may find success to be the measuring standard of education. Some educational institutions consider character as an important educational standard. In a country like ours these different standards vie with each other for a place of prominence. It is in accordance with the goals of an educational institution these criteria or standards or combinations of them will be prioritized.

"Higher education" similarly may vary in its meanings according to what it aims to achieve. The comparative adjective "higher" envisages a degree of measure which is better than that which has gone before rather than something different from it. If, therefore, education at the high school is a process of imparting skills of the mind to comprehend, to assimilate, to apply or use a given body of knowledge (in language or any other branch of arts and sciences) "higher education" would mean an augmentation of the same skills so as to make independent and advanced inquiry into different branches of knowledge. It would then imply a purely academic activity. If this goal is linked up with tangible utility, "higher education" will be understood as "higher" than school education to the extent it achieves better social or economic or human purposes as the case may be. Thus a mere mental ability achieved in Maths or Physics or any science, for example, may not be really considered "higher education" of a good standard by some if the men and women who have achieved such mental ability are not found to be socially or personally good men. Many do not consider "higher education" worthy of its name for this very reason. They say that some graduates are unemployable or otherwise not useful to society. Of late some feel that standards of higher education have fallen because such education has failed to provide success in terms of careers in this competitive world. It is, therefore, necessary to contextualise the terms "standard" and "higher education". We ought to be specific about what higher education should do and how well it should do that.

The deterioration of the standard of higher education is often talked about and written on by both educationists and politicians. The former blame it on an outmoded educational system with all its inherent ills of recalcitrance to change, mentalism, mediocrity, incompetence and others of a purely academic nature. The latter attribute this to non-productivity, commercialisation and other ills of a social or economic character. In recent months fall in standards of education has been the serious concern

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**Principal, Madras Christian College, Tambaram, Madras-600 059.*

of some of the top administrators of the State of Tamil Nadu. They attribute the progressive fall in the number of candidates entering the administrative services of our country from the South to such deterioration. While the lament of both educationists and non-educationist is justifiable on the basis of the grounds of their criticism of higher education, issues may not be clear unless we understand them in their proper context.

Values change from time to time; so do the goals of education. Giambattista Vico, an Italian philosopher and rhetorician of the University of Naples in the 18th century traces the origin of system and institutions to the same cause:

> The nature of institutions is nothing but their coming into being (*nasciments*) at certain times and in certain guises. Whenever the time and guise are thus and so, such and not otherwise are the institutions that come into being.[1]

The system of education that was prevalent during the forties and fifties of this century in our country was predominantly colonial in character and catered to the needs of a set up, which was characteristically feudal in structure. There was of course an ebullience of national aspiration to march into the promised land of free India but the values of a democratic system did not supersede those of an earlier era. The highest aspiration of an educated youth in those days was to look up to competitive opportunities to see himself or herself seated in the saddle of power and authority, perceived in terms of values in vogue. Nobler aspirations of service and constructive contribution to create a new society largely depended on the vision of great men such as Gandhiji and other political thinkers, although the bureaucracy should be credited with the efficiency that made such a vision come true, if not fully, at least partially. More independent minded men sought freer openings in the legal or other professions where one could be oneself without being part of a feudal system. True, power came to be vested in the people eventually but the aspirations of young men were oriented towards power and position. The educational system that prepared graduates for offices continued to be efficient in promoting competitive success in the hunt for careers. The value of education was that of preparing for careers in offices, banks and schools. The curricula were traditional and provided for the study of arts and sciences, not always for higher purposes of research or social transformation but for careers. Thus it came about that the degree was looked upon as a passport for career-entry. Institutions of higher learning which saw beyond this immediate goal and worked in religious and moral values were few.

The educational system geared to such a purpose needed only "information cargo" and memory to store it as well as the mental agility to reproduce it. The larger the quantity of the cargo, and the quicker one recalled it from memory, the better were the chances of competition success. Values of development and transformation did not have a place of importance in such a system. D.A. Ghanchi, Pro-Vice-Chancellor of North Gujarat University has succinctly stated this trend in our educational system, which is prevalent even today:

> The system (of higher education) continues to unload, to a very large extent, the information cargo that is less relevant not only to the culture and ethos of the country and its people, but also to the needs of development and change in the context of modern science, technology and social dynamics. The system's claim to be "higher" is belied by its being just post-secondary school in the contents and quality of its agenda of curricula.[2]

With the expansion of education without a matching augmentation of resources, and with no change in the understanding of the goals of education, the scenario of higher education became worse as the following figures show:

TABLE 1
GROWTH OF ENROLMENT, COLLEGES AND UNIVERSITIES

Years	Number of		
	Students	Colleges	Universities
1947-48	265,917	400	19
1950-51	396,745	695	27
1960-61	1,034,934	1,542	45
1970-71	3,112,404	3,604	105
1980-81	2,752,437	4,722	123
1984-85	3,538,980	5,482	140
1987-88	3,681,870	6,040	155

TABLE 2
PLAN OUTLAY ON EDUCATION IN INDIA

(Rupees in crores)

Plan	Total Plan Outlay	Outlay on Education	Outlay on Higher Education	Percentage of col. 2 to col. 4	Percentage of col. 4 to col. 3
1	2	3	4	5	6
I	2,069	152	13.70	0.66	9.01
II	4,600	250	45.39	0.99	18.16
III	7,500	497	73.50	0.98	14.79
IV	15,902	823	183.50	1.15	22.30
V	53,401	1,726	337.00	0.63	19.52
VI	97,500	2,524	486.00	0.50	19.26

The number of colleges has increased from 400 in 1948 to 6040 in 1968, the number of students increased from 265,917 to 3,681,870. The plan outlay increased from 0.66% of the total outlay on education (2,069 crores) in the first plan to 1.15% in IV Plan but it rapidly dwindled to 0.50 in VI Plan. With such an explosion in numbers, but with less resources to meet the demand, the system of education still looked upon as the source of making careers, for unavoidable reasons, had to cope. Successive education commission reports, among other things, emphasised the need for vocationalisation and job-orientation. This value has brought changes in the educational system in this direction. Curricula of colleges and universities went in for more and more professional and quasi professional courses. Commerce, Business Management, Physics, Computer Science, and such other subjects are in great popular demand. Application has taken the place of pure knowledge; physical skills—that of mental skills. Rush for professional courses such as medicine, pharmaceuticals, engineering, teaching and law remains unabated. It is in this way the value of providing career openings has come to stay. Added to this in the phenomenon of mass exodus to other countries in search of jobs or degrees for better jobs. The higher educational system has this need also on its agenda, as coaching for exams such as TOEFL and GRE is part of the curriculum in some colleges and universities. The second line of institutions in the unorganized sector such as tutorial colleges and other coaching centres reinforce formal institutions of higher learning in this material quest.

In the light of the foregoing assessment of what goes on in higher education we come back to the question of standards. If quality is understood as that which makes learners worthy of acquiring career openings, then the present system of education has not deteriorated as it is said to have. The system has diversified career openings so that aspirants can choose less difficult and less competitive avenues. True, many from the South do not enter IAS cadres on account of increasing hurdles in the way such as hard work, expensive coaching, handicaps created by lack of spoken Hindi and other obstacles. One is told that a Southerner has a great handicap on account of the language policy of some of the Southern states which do not encourage the learning of Hindi. Usually at interviews the interviewers are said to casually switch code and speak in Hindi and this inhibits the candidate who does not know Hindi and he begins with a primary handicap and ends in flustering confusion. While this may be one of the contributory causes of many not making the IAS, the main cause is found elsewhere. Many take easier options of undergoing training in business management or computer science which are less competitive and offer fewer impediments. The initiative of other young men encourages them to be more independent and they choose setting up of independent business enterprises or enter some organizations to serve as employees. Educated young men have become tailors, launderers, manufacturers, export magnates and the like. IAS itself is no longer looked upon with such avidity by young men as it was in the past; bureaucracy in a democracy loses part of its lustre when it is associated with policies of sorts. Corruption and nepotism are added disincentives which disenchant youth who are by nature idealistic.

If we accept this quality of higher education as legitimate—as indeed we should, at least for sometime to come, until the pressure on the educational system to provide ways and means to get jobs is present—then, we can supplement the present provisions by others:

(a) We may strengthen the vocational component of existing curricula by diversification, augmented training in real-life situations, parallel curricula devoted to developing courses in collaboration with industries, continuing education in professional and quasi-professional courses and such other strategies. In some colleges they have diversified the undergraduate curriculum in the third year by making science students take courses of an applied nature in Arts and vice versa. They offer among others, English for Careers, Poultry Science, Financial Accounting, Salesmanship, Tourism, Energy and Weather, Computer Programming, Spoken English and Public Speaking and other subjects. They also have departments of continuing education which offer, in addition to other courses, Printing Technology, Film Acting, Digital Electronics, Journalism, Mass Communication, etc.

(b) We may make coaching for IAS and other competitive examinations more systematic and less expensive. This may be finalised as a parallel educational activity actualised in evening sessions after 4 p.m. with the help of specially recruited staff. Professionalisation of job orientation by regular training, evaluation, mock-interviews, assessment, gradation of performance, etc. may be tried.

(c) The suggestions made above depend for success on the development of the communicative competence of the candidates. This is possible only when language teaching—in Hindi, Tamil and English—is to made effective. While it is necessary to develop in the learner competence in writing, more important is the need to develop facile and flawless speaking ability. Scholarship without speech is never manifest; writing without oral presentation is not quickly serviceable; and

MANAGEMENT INFORMATION SYSTEM AND UNIVERSITY ADMINISTRATION

Sanjay Shankar Kaptan*

M.I.S.—The Concept

Management Information System (MIS) is a network of communication channels and information processing centre collecting information from its sources of origin, storing, updating and processing it and supplying the processed information to the various users managing the organization. The design of a MIS starts with the identification of the information needs of the users. The users need information for operational, strategic and perspective planning and control for their own functional or geographical area or organization as a whole depending on their role in the organization. Each manager has to take various decisions from time to time which are in the best interest of the objectives of the organization as a whole. For performing this role, he needs special elements of information pertaining to the parameters that influence his decision and the decision methodology used by him in arriving at the optimal decisions. The elements of information may relate to the internal functioning in the organization or parameters in the external environment about the organization. The organised flow of relevant information and decision methodology needed for a special decision has to be built into the management information system. MIS does not wait for the initiative of the managers to ask for specific items of information. It provokes them to take initiative.

MIS Elements

Mason has distinguished between Management Information System and Decision Making System. His categories of MIS are based on the point of articulation between information system and the decision making system i.e. where the information system leaves off and the decision making begins. He describes the process of decision making as consisting of following five categories.

1. *Source:* Consisting of physical activities and objects which are relevant to the organisation.
2. *Data:* Observation measurement and recording of data from source.
3. *Inference:* Predictions drawn from the data.
4. *Values & Choices:* Evaluation of inferences with regard to the values (objectives or goals) of the organisation and choosing a course of action.
5. *Action:* Taking a course of action.

Uses of MIS

In addition to identifying the information associated with an organization, it is also necessary to identify the users of the information. These users are the management of the organization and they are traditionally represented as being separated into a number of levels depending on the significance of their decisions with respect to overall progress of the organization.

Typical levels of management in an organization like a university and the potential system users are—

(I) Executive Council and Vice-Chancellor—Planners which encompasses organization leaders and long term planners.
(II) The Registrar's office which is mainly responsible for year to year planning and leadership.
(III) The operational management, i.e. D.Rs. and A.Rs, which encompasses month by month planning and leadership.
(IV) The Supervisors who are concerned with the day to day leadership and management.

The Development of MIS Cycle

Like any other resource, an information system must be developed and maintained to satisfy the requirements of the organization it serves. A five stage life cycle pertaining to the development of an information system in any organization is explained in Fig. 1.

MIS Flow Chart in University Administration

University is a very important social organization which sets the pace of socio-eco-technological and educational development of society. It has to move with the time. Hence, it should always consider the needs of external and internal users and its impact on their functioning in university administration. The MIS works at three levels from this angle (Fig. 2).

1. Operational level,
2. Tactical level, and
3. Strategic level.

1. *Operational Level in MIS*

Operational level of MIS in university administration

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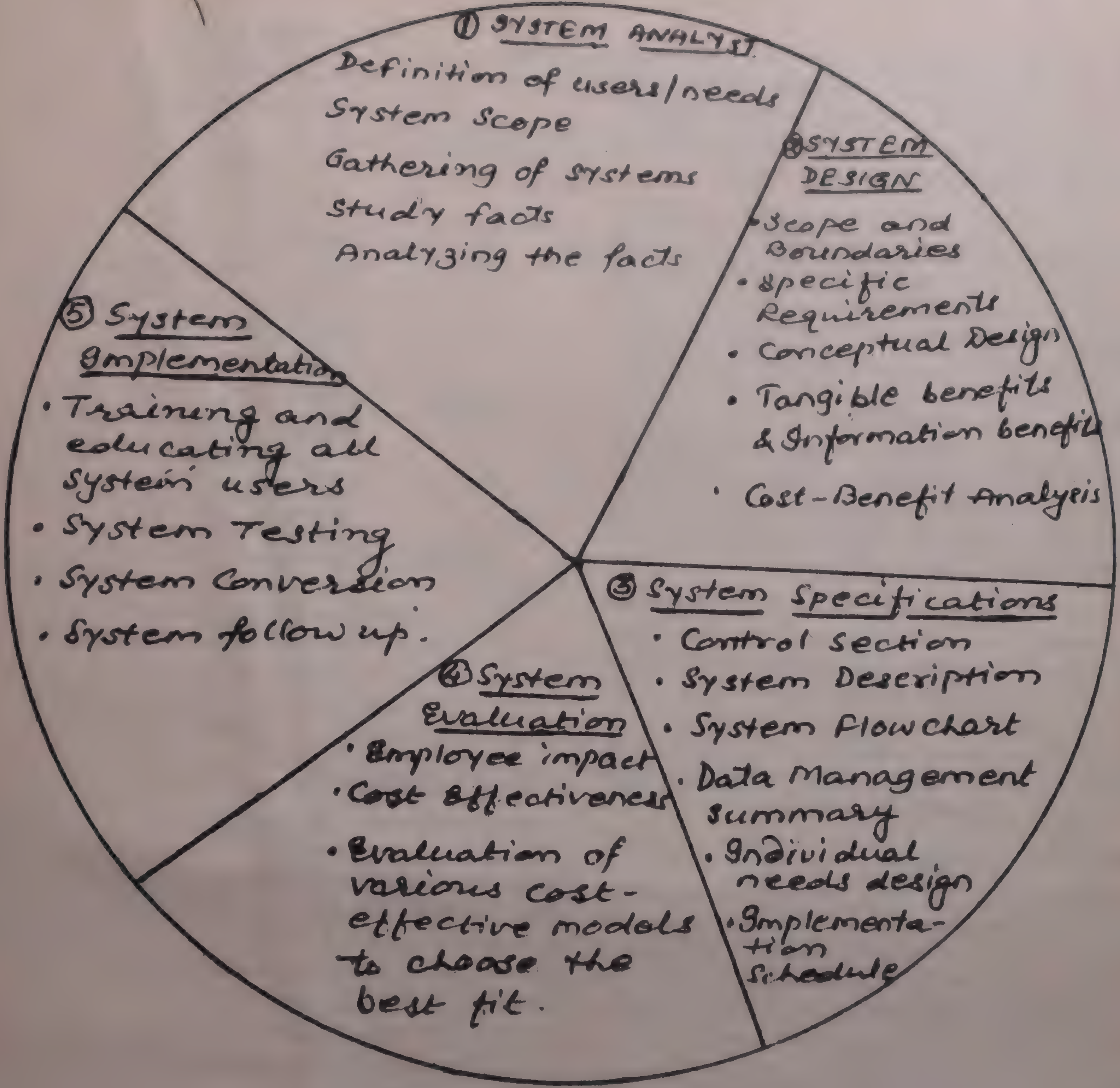
① SYSTEM ANALYST
Definition of users/needs
System Scope
Gathering of systems
Study facts
Analyzing the facts
② SYSTEM DESIGN
• Scope and Boundaries
• Specific Requirements
• Conceptual Design
• Tangible benefits & Information benefits
• Cost-Benefit Analysis
③ System Specifications
• Control Section
• System Description
• System Flowchart
• Data Management summary
• Individual needs design
• Implementation Schedule
④ System Evaluation
• Employee impact
• Cost Effectiveness
• Evaluation of various cost-effective models to choose the best fit.
⑤ System Implementation
• Training and educating all system users
• System Testing
• System Conversion
• System follow up.

Fig. 1

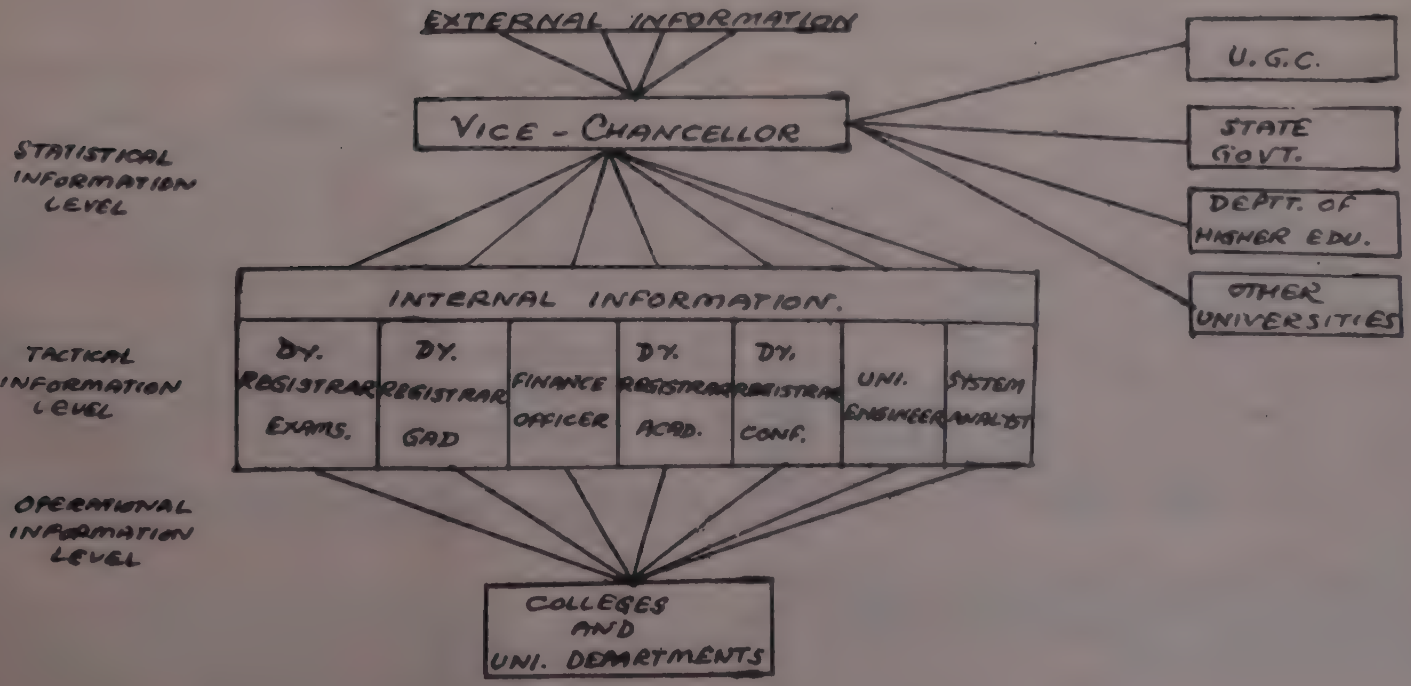
EXTERNAL INFORMATION
VICE-CHANCELLOR
U.G.C.
STATE GOVT.
DEPTT. OF HIGHER EDU.
OTHER UNIVERSITIES
STATISTICAL INFORMATION LEVEL
INTERNAL INFORMATION.
TACTICAL INFORMATION LEVEL
DY. REGISTRAR EXAMS.
DY. REGISTRAR GAD
FINANCE OFFICER
DY. REGISTRAR ACAD.
DY. REGISTRAR CONF.
UNI. ENGINEER
SYSTEM ANALYST
OPERATIONAL INFORMATION LEVEL
COLLEGES AND UNI. DEPARTMENTS

Fig. 2

consists of all those sources of information which are under direct control of the university and with whom the university has to deal in its routine course of business. Information from these sources has to be collected periodically and regularly in a specific manner.

A neatly designed MIS can be of great help to university administrators in case of information from university departments and colleges. This information should be processed and presented in tabular form explaining relationship of various variables with each other. Furthermore computerization of this information can help in getting right information at right time in a fraction of a second. It will also save cost of storage and maintenance. For example, a computerised list of teachers in affiliated colleges with necessary details can be used simultaneously by Academic, Examination, General Administration and Finance sections. This will save their labour of preparing separate lists.

This information is usually collected periodically. A properly drafted information calendar will help collect timely and accurate data. Every college and department be informed in advance to submit requisite details as per predesigned calendar so that proper processing can be done. If a structured and uniform format is used for all colleges then it will be easier to process the information and maintain it in standardised manner.

2. *Tactical Level of MIS*

At tactical level of MIS, information regarding decision making is required. These decisions are specifically based on the information collected from operational level sources. For example, eligibility of a student for examination. This decision will be taken on the basis of information gathered from colleges.

As tactical level information has its impact on the credibility of university decisions and on the short term success of university functioning, the information has to be screened very carefully.

3. *Strategic Level of MIS*

Strategic information is usually supplied to all external and controlling institutions. These agencies are involved in guiding, directing and planning the long term aspects of higher education. These agencies are UGC, Human Resource Development Ministry, Senate, Academic Council, Executive Council, etc. These agencies need information pertaining to designing of academic policy, restructuring of courses, advancement of education and other aspects pertaining to educational administration.

This information has to be based on the operational and strategic levels and is supplied by higher authorities of university administration.

Table No. 1

Levels in MIS
in University Administration

Sr.No.	Level	Information
1.	Operational	Preliminary statistics of students enrolment and eligibility of teachers, subjects, etc., Annual Reports, Scholarships, Elections, Workload, Budget Abstract.
2.	Tactical	Eligibility of students, utilization of funds, Areas of expansion, constructing new premises, Asking for additional grants, performance of university, legal aspects.
3.	Strategic	Opening of new courses, Asking for additional grants, Explanation of a specific incidence, Press release, Starting a Research Centre, Changes in course structure, Information to other universities.

Problems in Designing MIS

Even though institutes of higher learning have been functioning for over a century, their administration has not developed into a systematic and independent branch of science. The universities are still lagging far behind in terms of modernization of administrative machinery for varied reasons. A structured MIS is not developed in university for following reasons.

(1) Lack of sound and comprehensive system of planning and control within the organization.

(2) Lack of sufficient participation at all levels of administration in designing and implementing a MIS.

(3) Inappropriate organizational arrangements for the development of MIS leading to open or covert hostility of functional administration.

(4) Overemphasis on development of information system for control of organization activity as compared to design of information system for the purpose of planning.

(5) Lack of selectivity in MIS objectives often resulting in a frontal attack on all aspects of the work of the organization rather than concentration on a few critical areas at a time.

(6) The approach and attitude of administrators

(Contd. on page 13)

A NEW DIMENSION TO FORESTRY EDUCATION

Shashikant*
J.K. Das**

Background

The development of Forestry Education has been intimately connected with scientific management and conservation of the forests. In the beginning, the forests were manned by people drawn from the civil services and the army. Mr. Brandis, the first Inspector General (Forests), soon recognised the need for fully qualified and scientifically trained officers to help him in the administration and conservation of the forests. As a result of his initiatives training of forest officers was started in 1867 and the officers were deputed to different countries i.e. Germany, France and U.K. for the training. The Indian Forest College at Dehradun was started in 1926 and the course was continued until 1932. The training of forest officers at Forest College, Dehradun remained suspended from 1933-1938. During this period the government again sent their candidates for training to U.K. Since 1938, the training has been again started at Dehradun and on increased demand, three new State Forest Officer's Colleges have been started recently at Coimbatore, Burnihat and Dehradun.

The Forest Science being application oriented drew its knowledge from Physical, Natural and Biological Sciences and evolved its own concepts, techniques and methods of relevance to effectively and efficiently manage the resources. Forest officers were imparted all the skills necessary for raising, tending, harvesting and utilising the forest crop. Other administrative and accounting skills were learnt on the job.

The forestry scenario after independence changed so rapidly that developments in Forest Science and concepts, methods and practices of traditional forest management could not keep pace with changes. Large areas were cleared for cultivation to meet the needs of ever increasing population, sizeable forest areas under the jamindari and private forests were cleared by the owners leaving the Reserve Forests vulnerable. The industrial demand rose with Government's expectations and notions of inexhaustible forest resource as a gift of nature. The forest management which was not face to face with the people's use of forest resource as well as meeting their daily needs was confronted with problems never before envisaged.

The forest officers were not trained to solve the problems of this nature. The traditional skills of foresters were not enough to confront the resource hungry industrialist, land hungry people, high cattle population and rising human population.

The National Commission on Agriculture (1972) identified low productivity of Indian forests as the main cause of all the problems and recommended huge investment in plantation forestry to increase the output of forest land. To manage these investments, it also recommended introduction of concepts, methods and techniques of 'Business Management' to effectively utilize the investments to be undertaken by the new institutions of Forest Development Corporations.

To meet short term expectations of rising population, a concept of Social Forestry was introduced. This change over was of direct relevance to the concept of management, different from the traditional 'Business Management'. The induction of Social and Behavioural skills in Forestry was recognised by identifying the social role of forests apart from business role in which the economics, finance and marketing play an important role.

Indian Institute of Forest Management

With all this background, it was felt that the managerial skills were essential in addition to the technical knowledge to manage the forests in the changed environment and a necessity to create an institution which could develop these skills in the future forest managers was realized by the Government of India in 1978. Indian Institute of Management, Ahmedabad (IIMA) developed a 10 year perspective plan for this kind of institution and a society was registered on 15th June, 1982 in the name of Indian Institute of Forest Management Society.

Indian Institute of Forest Management (IIFM) is an autonomous institution of IIFM society with grant-in-aid from Government of India, Ministry of Environment and Forests. The foundation stone was laid by the

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* *Faculty, Forest Resource Economics & Management, and*

** *Faculty, Marketing Management,*
Indian Institute of Forest Management,
Nehru Nagar, Post Box No. 357, Bhopal.

Hon'ble Prime Minister—Late Mrs. Indira Gandhi on Feb. 6, 1982. The new campus was inaugurated by Hon'ble President of India Shri R. Venkataraman on 25th June, 1988.

Postgraduate Diploma in Forestry Management

The Institute, on first July '88 launched its Postgraduate Programme in Forestry Management (PFM) leading to the award of Postgraduate Diploma in Forestry Management (PGDFM). The PFM aims at developing manpower with a judicious mix of the following three different types of skills and knowledge:

1. be familiar with a variety of basic scientific and technical aspects of raising and maintaining forests,
2. to have human and inter-personal skills for effectively handling a situation and ability to understand a problem from the view point of the people involved,
3. to have a thorough understanding of the basic analytical and managerial skills useful in problem solving and decision making.

Since the first batch which was admitted in July '88, two more batches have been admitted in 1989 and in 1990. In the three admissions so far, on an average each year approximately 7000 candidates had applied. The admission test was conducted at seven centres in 1988 and 16 centres in 1990 all over the country. The final selection was made after the short-listed candidates were put through the Group Discussion and Interview.

The programme is open to graduates in all disciplines who score at least 50% (45% for SC/ST) at graduate level and at any of the levels (High School, Higher Secondary, 12th).

All the students who are admitted are given a Scholarship of Rs. 1000/- per month to meet their tuition and living expenses etc.

Programme Structure

The total duration of the programme is 85 weeks including four weeks of summer vacation and one week vacation for Dushera/Diwali. The 80 academic weeks are divided into eight segments of 10 weeks each. Five of these segments are for classroom study, one for field work, and two separate spells for organizational training.

(i) *Classroom Segments*

The subjects taught in classrooms can be broadly classified in three categories—(i) **Core Forestry Subjects,** i.e., Silviculture, Environment and Ecosystem, Forest Mensuration, Forest Management Technology, Agro Forestry Systems and Forest Management; (ii) **Core Management Subjects,** i.e., Managerial Analysis, Understanding Behaviour, Management of Human Resources, Project Management, Marketing Management, Financial Management, Materials Management, Marketing Research etc., and (iii) **Inter-Disciplinary Subjects,** i.e. Legal and Political Environment, Common Property Resource Management, Planning and Control, Social Ecology and Rural Environment etc. The details are given in Table-I.

(ii) *Field Work*

Field work for a duration of 10 weeks is organised to sensitize the students to the realities of forestry, rural socio-economic structure and problems of the tribals and the poor.

Keeping the objective in mind, the entire field work component is divided into two parts:

(a) Forestry Component
(b) Village Component

Students are attached to different forest divisions in groups of 3-4. During the entire duration of field work, a group of students works at different levels—Divisional Head Office, Range Office, and village. During village component, students stay in a village for a duration of 3-4 weeks.

(iii) *Organizational Training* (OT)

As the education of forest managers will be incomplete without exposure to real life situations; organizational training has been made an essential requirement of PFM. The organizational training provides the following opportunities to the students:

1. First-hand exposure to the functioning of an organization.
2. To relate classroom learning of concepts and skills to real life management situations.
3. To learn through on the job experience.

There are two components of organizational training. In Organizational Training-I (OT-I), students are attached to two/three different types of organizations i.e., Forest Corporation, Forest Based Industry and Voluntary Organizations, where normally they work on an independent project. In this component in addition to project, they are also acclimatized to different work cultures. In Organizational Training-II (OT-II), students are attached to only one organization. Except in few special cases, each student works on an independent project.

The Organizational Training programme was highly receptive to the client organizations. Table-II gives the list of organizations associated with our training programme for the first (1988-90) PFM batch.

TABLE- I CALENDAR OF 85 WEEKS POST-GRADUATE PROGRAMME

Activity	Class Study TERM-I	Class Study TERM-II	Field Work	Class Study TERM-III	**Organisational Training-I**	Class Study TERM-IV	Organisational Training-II	Class Study TERM-V
DATE Tentative	July 1 to Sept. 17	Sept. 18 to Dec. 4	Dec. 7 to Feb. 12	Feb. 15 to April 18	June 5 to Aug. 4	Aug. 5 to Oct. 20	Oct. 26 to Dec. 31	Jan. 12 to March 31
LEARNING FOCUS	FOUNDATION	FOUNDATION & APPLICATION	AWARENESS OF AND SENSITIVITY TO PROBLEMS OF RURAL COMMUNITIES	ANALYSIS AND APPLICATION OF CONCEPTS	APPLICATION OF MANAGEMENT CONCEPTS AND SKILLS TO WELL DEFINED PROBLEMS	APPLICATION AND SYNTHESIS	INTEGRATIVE PERSPECTIVE OF ORGANISATION	SYNTHESIS AND INTEGRATION
1. Technical Skills	Structure, Environment and Ecosystem	Forest mensuration	THE CLASS TO BE DIVIDED INTO SMALL GROUPS AND SENT FOR FIELD WORK AT VARIOUS LOCATIONS IN THE COUNTRY AFTER SUFFICIENT PREPARATION.	Forest Management Technology	STUDENTS WILL WORK, EITHER INDIVIDUALLY OR IN VERY SMALL GROUPS ON PROJECTS SPONSORED BY VARIOUS CLIENT ORGANISATION. EACH STUDENT OR GROUP WILL PREPARE & PRESENT REPORT AT FIRST TO THE ORGANISATION AND LATER AT THE INSTITUTE.	Land Management & Agroforestry Systems	STUDENTS WILL WORK IN SMALL GROUPS ON PROJECTS SPONSORED BY CLIENT ORGANISATIONS, PROJECTS SHOULD BE SUCH AS WOULD FACILITATE INTERACTION WITH POLICY MAKERS AND INTEGRATION OF VARIOUS CONCEPTS.	Forest Management
2. Anartical and Managerial Skills	Basic Accounting Forest Resources Economcis, Quantitative Techniques.	Man. Acc. & Costing, Macro Economics Quantiative Techniques-II,				OT-I Experience Sharing		
3. Behavioural Skills	Understanding Behaviour-I	Understanding Behaviour-II, Social Ecology and Rural Environment.		Management of Human Resources		Project Management, Market Research.		
4. Application of Concepts to Managerial Problems	Managerial Analyses & Communication (15 Sessions)	Managerial Analysis & Communication (15 Sessions)		Materials Management Marketing Mgmt. Financial Management,				OT-II Experience Sharing
5. Synthesis and Perspective Building				Managerial Analysis & Communication (15 Session), Forestry Organisation.		Management Information System Forestry Operations Management, Legal and Political Environment.		National Forest Policy & Planning, Development Administration in Forestry, Strategic Management, Management of Common Property Resources, Planning & Control.

Table-II: Organizational Training Associations

	Forest Corporations	Forest Industries	International Organizations	Voluntary Organisations	Others
1.	APFDC	Mysore Paper Mills.	ISO/SWED-FOREST	VIKSAT	TERI
2.	KFDC	WIMCO	Ford Foundation	IST	NDDB
3.	KSFIC	IPM-Dandeli	World Bank	Gram Vikas	IFFCO
4.	TNFPC	A P Paper Mills	W.F.P.	AFPRO	TRIFED
5.	KPC	Bhadrachalam Paper Boards	AKRSP	SPWD	
6.	MSFDC	Harihar Polyfibres		Seva Mandir	
7.	GFDC	South India Viscos Ltd.		Gram Vikas Kendra	
8.	MPFDC	Ballarpur Industries			
9.	UPFDC			JPAC	
10.	HPFDC			Youth Charitable Orgn.	
11.	WBFDC			Assist India KUDUMBAM	
12.	OFC			APPEC	
13.	JKFDC			MYRADA YFA	

Most of the organizations have also supported the students project work in financial terms. Almost all the organizations offered the travel fare, TA/DA as per norms of the organizations or boarding and lodging and incidental expenses. In OT-II, every student received the financial assistance from the concerned host organization. The maximum support was to the extent of Rs. 15,000/- approximately and the average support was of Rs. 7,000/- approximately for the OT-II projects.

Placement

For the final placement of students fulfilling the requirements for the award of PGDFM, campus interviews are organized by the Institute in the month of March/April. The placement activity is coordinated by Coordinator-Placement who is a faculty member of IIFM. The campus interviews for the first batch were organized from 12th March to 11th April, 1990.

For the first batch (1988-90) passing out in 1990, not much was known about their capabilities etc. by the client organizations except through the project work done during the Organizational Training, but exceptionally good response was received from the client organizations numbering 24, offering 53 job positions for 27 students as a result of a well planned-out strategy adopted by the Institute to attract the client organizations. The category-wise break-up is given in Table-III.

Table-III: Placement Response Category-wise.

Sl.No.	Category	No. of Posts.	No. of Organizations.
1.	International Organizations	4	2
2.	Non-government Organizations	14	9
3.	Forest-based Industries	19	7
4.	Forest Development Corporations	4	2
5.	Consultants/Research Institute	6	3
6.	Public Sector Organizations	6	2
		53	25

Quite a few organizations could not get hold of any student as the students had better job options (in their own perception). The job offers which were accepted by students are given in Table-IV.

Table-IV: Job-offers Accepted by IIFM Students.

Sl.No.	Organizations	No. of Posts.
1.	ISO/SWEDFOREST	03
2.	Ford Foundation—Ram Krishna Mission	01
3.	Ballarpur Industries Ltd. (BILT)	04
4.	WIMCO Ltd.	05
5.	Tata Energy Research Institute (TERI)	03
6.	Tata Consultancy Servicec (TCS)	02
7.	Om Consultants	01
8.	Aga Khan Rural Support Programme (AKRSP)	01
9.	Harihar Polyfibers (GRASIM)	02
10.	Rashtriya Vriksha Mitra Sahayog Ltd. (RVMSL)	02
11.	Tribal Cooperative Marketing Development Federation of India Ltd. (TRIFED)	04
12.	Society for Promotion of Wastelands Development (SPWD)	02
13.	Straw Products Ltd.	01
14.	Bhadrachalam Paper Boards Ltd.	02
15.	MP Forest Development Corporation Ltd.	01
16.	UTTHAN—Mahiti	01
17.	Centre for Science & Environment (CSE)	01
		36

The average per month salary, excluding PF, LTC and bonus etc. works out to approx. Rs. 3,450/- i.e. (Basic + Allowances + HRA) for the job offers

TO OUR READERS

Knowledgeable and perceptive as they are, our contributors must not necessarily be allowed to have the last word. It is for you, the readers, to join issues with them. Our columns are as much open to you as to our contributors. Your communications should, however, be brief and to the point.

accepted by IIFM Graduates. The lowest salary offered was Rs. 1,800/- p.m. by South India Viscos Ltd., which was not accepted by our students, and the highest salary offered was by ISO/SWEDFOREST, BILT and TCS. ISO/SWEDFOREST offered Rs. 3500/- + Rs. 250/- per diem for field work and BILT/TCS offered in excess of Rs. 5,000/- p.m. approximately to our students.

If estimated LTC, Bonus, P.F. and Medical benefits etc. are added to the salary, then the average salary of the student would work out to Rs. 4,000/- p.m. approximately.

Thus Indian Institute of Forest Management has not only given a new dimension to forestry education in the country but it has also moved in a way of fulfilling the requirement of trained manpower of non-traditional forestry sector i.e., Forest Industries, NGOs working in Forestry area, International Organizations and other organizations like IFFCO, TRIFED; RVMSL and TCS etc.

It was quite a surprise that the two wings of traditional forestry sector—the Forest Corporations and the Social Forestry Directorates, which definitely need technical persons with business management and social and behavioural sciences background respectively, did not come forward to recruit IIFM graduates which are scarce and might prove to be crucial for organizational success. Hopefully the traditional sectors of forestry will also start opening-up in the coming years and would recruit managers equipped with business management and social and behavioural science skills for suitable positions in their organizations.

The Institute also organises Management Development Programmes (MDPs) for the practicing foresters and others involved in forestry activities and imparts knowledge about new management practices to the participants. The popularity and effectiveness of these MDPs are increasing day by day. IIFM has become an important link between environment restoration and people's propensity to deforest to meet their wood requirements etc.

For a new Institute aspiring to be a centre for excellence, it is a brilliant start but it is a long way to go. IIFM is no doubt inching its way forward to take a prominent place in the world map of forestry institutions. ☐

INDIAN INSTITUTE OF SCIENCE
BANGALORE-560 012

Requires

ASSISTANT PROFESSOR in the Centre for Atmospheric Sciences.

QUALIFICATION: Ph.D in Engineering /Science with an excellent academic record and proven research ability in an area directly related to atmospheric sciences.
Strong background in atleast one of the following: Theoretical/experimental fluid mechanics, geo-physical fluid dynamics, atmospheric convection and thermo-dynamics.

EXPERIENCE: 5-8 years research in relevant area. Relaxable in exceptional cases.

JOB DESCRIPTION: Candidate is to contribute to the teaching programme and research on laboratory modelling and theoretical investigations of the dynamics of tropical atmospheres and oceans.

EMOLUMENTS: Rs. 5930/- p.m. in the scale Rs. 3700-5700.

Details and prescribed application form can be obtained from The Registrar, on request accompanied by an I.P.O. for Rs.10/- (free of cost to SC/ST on production of Caste Certificate from a competent authority) drawn in favour of The Registrar alongwith a self-addressed stamped (Rs.2-00) envelope of the size 28cms. × 18 cms. **on or before 10-9-1990.**

R(IA)308-21/90

REGISTRAR

Management Information System and University Administration

(Contd. from page 8)

towards 'information system' is still very narrow. Information system is not yet accepted as a productive and functional system by many administrators.

(7) The pathetic view of administrators towards modern methods of management science is another reason for non-implementation of MIS in a university.

(8) Low computerization of storage, processing and interpretation of data has not yet made MIS popular in universities.

Conclusion

To achieve management effectiveness, it is necessary to provide university authorities with pertinent, timely and accurate information about various activities and different aspects of university functioning. As a result of recent developments in the field of computer, electronic data processing system and information technology, it has become possible to develop highly effective information system for management planning and control. Considering the utility of advanced and sophisticated system in the organization of higher learning, it is necessary to instal MIS in a careful and planned way in modern universities. ☐

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OR
DEATH

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IT HELPS

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- Admission to School
- Getting Employment
- Right to Vote
- Obtaining a Driving Licence
- Obtaining a Passport
- Taking Insurance Policy

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- To inherit property
- To get insurance money
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REGISTRAR GENERAL, INDIA

davp 90/146

Vancouver Declaration on Survival in the 21st Century

We are happy to publish for the benefit of our readers the complete text of the Vancouver Declaration on Survival in the 21st Century issued by the Unesco symposium on 'Science and Culture for the 21st Century: Agenda for Survival' organised at Vancouver under the aegis of the Canadian Commission for Unesco.

Survival of the planet has become of central and immediate concern. The present situation requires urgent measures in all sectors—scientific, cultural, economic and political, and a greater sensitization of all mankind. We must make common cause with all people on earth against a common enemy: any action that threatens balance within our environment or reduces our legacy to future generations. Today, this becomes the objective of the Vancouver Declaration on Survival.

I. Mankind Confronting Survival

Our planet is unstable—a constantly changing heat engine. Life appeared on its surface about four billion years ago, and developed in balance with an environment where sudden unpredictable change is the norm. The Discovery, over 200 years ago, of free energy locked in fossil fuels has given humankind the power to dominate the whole planetary surface. In an unbelievably short span of time, unplanned and almost mindlessly, our species has become by far the largest factor for change on the planet.

The consequences have been drastic and unique in the history of our species:

- an accelerating increase in population growth over the past 150 years from 1 billion to over 5 billion with a current doubling time of 30-40 years:
- a comparable increase in the use of fossil fuels leading to global pollution, climate and sea-level change;
- an accelerating destruction of the habitat of life, initiating a massive and irreversible episode of mass extinction in the biosphere—the basis of the Earth's ecosystem;
- an unimaginable expenditure of resources and human ingenuity on war and preparation for war.

And all licensed by a belief in inexhaustible resources of the planet encouraged by political and economic systems that emphasize short term profit as a benefit, and disregard the real cost of production.

The situation facing manking involves the collapse of any balance between our species and the rest of life on the planet. Paradoxically, at the time when we stand at the threshold of degeneration of the ecosystem and degradation of human quality of life, knowledge and science are now in a position to provide both the human creativity and the technology needed to take remedial action and to rediscover the harmony between nature and mankind. Only the social and political will is lacking.

II. The Origin of the Problems

The origin of our present predicament lies fundamentally in certain developments in science that were essentially complete by the beginning of the century. Those developments, which are mathematically codified in a classical mechanical picture of the universe, gave to human beings a power over nature that has, until recently, produced an ever-increasing, and seemingly boundless, supply of material commodities. Swept up in the exploitation of this power, humankind has tended to shift its values to those promoting the maximal realization of the material possibilities that this new power provides. Suppressed, correspondingly, were the values associated with dimensions of the human potential that had been the foundations of earlier cultures. The improvement of the conception of man caused by this omission of other human dimensions is precisely in line with the "scientific" conception of the universe as machine, and of man as nothing but a cog within it.

Man's conception of himself is a principal determinant of his values; it fixes the conception of "self" in the appraisal of self interest. Thus, the ideological impoverishment associated with the view of man as a cog in a machine leads to the narrowing of values. However, scientific advances of the present century have shown this mechanical view of the universe to be untenable on purely scientific grounds. Thus the rational basis for the mechanical conception of man has been invalidated.

III. Alternative Visions

In contemporary science, the older rigid mechanical picture of the universe is replaced by concepts that permit a universe that is formed by a continual creative input that is not rigidly constrained by any mechanical law. Man himself becomes an aspect of this creative impulse, and is linked into the whole universe in an integral way that is not expressible within the older mechanistic framework. The "self" becomes thereby converted from a deterministically controlled cog in a giant machine to an aspect of a free creative impulse that is intrinsically and immediately tied to the universe as a whole.

Human values become, accordingly, in this new scientific view, enlarged into values consonant with those prevalent in earlier cultures. It is within the framework of the converging images of man provided by recent scientific and cultural developments that we look for visions of a future that would allow man to survive in dignity and harmony with his environment.

The human species has reached limits in its use of the external world and also limits in its capacity to live in a changing social and cultural environment. Man's developing perceptions in science suggest that he might recapture lost beliefs and varieties of spiritual experience. The present critical situation in mankind's occupancy of the planet requires new visions, rooted in a variety of cultures, in contemplating the future:

* The perception of an organic macrocosm that recaptures the rhythms of life would allow man to reintegrate himself with nature and understand his relationship in space and time to all life and the physical world.
* Recognition that a human being is an aspect of the creative process that gives form to the universe, enlarges man's image of himself and allows him to transcend the egoism that is the principal cause of disharmony among his fellows and between mankind and nature.
* The overcoming of fragmentation of the body-mind-spirit unity, brought about by unbalanced emphasis on any one over the others, allows man to discover within himself the reflection of cosmos and its supreme unifying principle.

Such visions change the conception of man in nature and call for a radical transformation of models of development; the elimination of poverty; ignorance and misery; the end of the arms race; introduction of new learning processes, educational systems and mental attitudes; implementation of better forms of redistribution to ensure social equity; a new design for living based on a reduction of waste; respect for bio-diversity, socio-economic diversity, and cultural diversity that transcends outmoded concepts of sovereignty.

Science and technology are indispensable for the attainment of these goals but they can succeed only through an integration of science and culture that leads to a sense of purpose, and in integrative approach designed to overcome the fragmentation that has led to a breakdown in cultural communication.

If we fail to redirect science and technology towards fundamental needs, the advances in informatics (hoarding of knowledge), biotechnology (patenting of life forms) and genetic engineering (mapping of the human genome) will lead to irreversible consequences detrimental to the future of human life.

Time is short—every delay in establishing a world eco-cultural peace will only increase the cost of survival.

We must recognize the reality of a multi-religious world and the need for the kind of tolerance that will enable religions, whatever their differences, to cooperate together. This would contribute to meeting the requirements for human survival and for the nurturing of the shared core values of human solidarity, human rights and human dignity. This is the common heritage of mankind that derives from our perception of the transcendental significance of human existence, and from a new global conscience.

POPLINE Service

National Social Science Documentation Centre of Indian Council of Social Science Research has acquired POPLINE (Population Information Online) database in CD-ROM from Johns Hopkins University, USA with the assistance from UNFPA. This database provides bibliographical data and abstracts of worldwide literature on (i) research in human fertility (ii) contraceptive methods (iii) family planning services (iv) maternal and child health (v) AIDS in developing countries (vi) census (vii) program operations and evaluation (viii) demography (ix) vital statistics and (x) related health, law and policy issues.

POPLINE is the world's largest database on population with 1,60,000 records in English language. These references are from 15 types of publications including published and unpublished works.

A computer print-out of titles with bibliographic details and abstracts can be supplied to the interested scholars from the Centre. Requests may be forwarded to the Director, National Social Science Documentation Centre, New Delhi.

National Institute of Health and Family Welfare Centre, New Delhi also provides this service from the database to the scholars.

On the Decline of the Scientific Attitude

Dr. Raja Ramanna, Minister of State for Defence, Government of India, delivered the Convocation Address at the Sixty Eighth Convocation of the Osmania University. He observed, "Not only is a feeling growing that, while science has done wonders in understanding the material world, it may not be broad enough to understand human behaviour and the ultimate structure of the Universe. Unfortunately, this attitude has led to a denegration of Science and, what is perhaps worse, one has begun to neglect the very methods of Science itself. All this is bad for our development and that is why I have entitled my address as on the decline of the scientific attitude ". Excerpts

Convocation

Let me admit, at the very outset, that I personally believe that a University has no right to exist, if merit and excellence are not its prime consideration. Many a good University has been destroyed in post-independent India for no other reason than the Institutions have forgotten their very raison d'etre. Those of my generation will remember the interest that pervaded in the Universities in the Science by all those who came to benefit from higher learning. I recall, how at exhibitions and such other occasions, people used to queue up to see a demonstration of, say, the Raman effect, or fill halls only to listen to a popular lecture on some recent scientific discovery.

The powerful personality of the late Prof. C.V. Raman, the Nobel Prizeman, dominated the scene of the thirties. Then came the Second World War. This great catastrophy gave birth to a wave of enthusiasm for the Sciences to the extent that people began to believe that what the world wanted was Science and nothing else to solve all its problems. When the Atomic and Space age dawned and discoveries of the ultimate structure of matter and the biological cell were unveiled, it gave the impression that we had understood all that we had to know of the universe we live in. It was believed that whatever we had to know of the rest of the Universe would be known through Science within the next few decades itself.

Unexpectedly, this has not happened. Not only is a feeling growing that, while science has done wonders in understanding the material world, it may not be broad enough to understand human behaviour and the ultimate structure of the Universe. Unfortunately, this attitude has led to a denegration of Science and, what is perhaps worse, one has begun to neglect the very methods of Science itself. All this is bad for our development and that is why I have entitled my address as ON THE DECLINE OF THE SCIENTIFIC ATTITUDE. It may sound a somewhat strong indictment of our present age, but I propose to make a case for it and will be happy if I am wrong.

One would have expected that, after being told to cultivate the spirit of the scientific temper for forty years, we have allowed ourselves to depend on various types of obscurantist practices which clearly show signs of a lack of confidence in ourselves. As it happens, our history has long been sustained by obscurantism and for most people it seems that it is an inescapable part of their daily life. However, I am one of those who believe that there is nothing obscure in obscurantism. It is just a fraud on the people. I meet more people who believe in Astrology than I used to meet ever before, and even if one incident of our several thousands agrees with an astrological prediction, it seems to be good enough proof for these gullible people. It is the same with medical cures based on quackery and thousands of people have suffered on account of this, particularly in the misuse of steroids, and yet the practitioners get away and continue to derive and accumulate financial and political strength. Quite some time ago, it prompted Prof. C.V. Raman to exclaim that: "Alas, people prefer Prof. B.V. Raman (who edits a monthly on Astrology and is a great adversary of Science) to Prof. C.V. Raman"! The great mathematician of the earlier part of the century, David Hilbert, said the following about Astrology: "When you collect the ten wisest men of the world and ask them to find out the most stupid thing in existence, they will not be able to find anything more stupid than Astrology". Our desire for astrological prediction is an exhibition of our lack of courage to face the future and a general backwardness as compared with the West. It is not that there are not enough bright young men who are votaries of Science and who are willing to fight superstition and injustice, it is just that the present state of our society makes them ineffective. To keep people in a condition to be able to control them by obscurantist pressures is not a new one in history, but that we have created a large society that feeds on this kind of need, even as it enjoys all the benefits of Science, is a new one.

Another aspect of anti-science movements in great vogue is the classification of young people by consideration other than their competence especially in scientific and technical fields. Such restrictions lead to bad science, bad engineering and bad medicine. After all, we realise that it would be ridiculous to make selections in our hockey, cricket and athletic teams on considerations other than excellence especially when they have to face international competitions. Why must it be so in Science and Technology teams? As things stand, the country has a very large number of poor quality doctors and engineers and it is difficult to find gifted students, who can take up the challenge of research in the Basic Sciences. By gifted, I mean, those who can contribute to it through original and new ideas. At the moment, if, by chance, a good man has got into one of the professional subjects, he sees his salvation only by going abroad. Good Science, Engineering and Medicine do not get well with a system which is based on eliminating merit. It merely causes internal and external brain-drain and results in professions being filled with persons of mediocre quality with consequent damage to the profession. That one can get away with a basic issue like merit, by obscurantist reasonings, is a sure sign of destroying the science-base in India. Such attitudes not only show injustice to our bright boys, but is an insult to Science itself, which can justify itself only on international competition. The direction of advancement can only be on the slogans of "I am excellent, I want to become excellent and will compete with only those who are excellent". It is only then they can call themselves as true students of Science, capable of doing things original.

If I may venture to comment on the disinterestedness in Science among students, I would put it to our marking system. Perhaps the comment of JBS Haldane, the great Biologist, who became a naturalised Indian, is worthy of note. He said that in India we give too many first classes in our Universities and insist that only those getting above 95% are of any worth. His experience was that it was only those who got second classes, who showed any real originality. A first classes producing factory does not contribute to real Science and Technology.

Another aspect of our new obscurantism is the excessive importance given to the rural aspects of Agriculture, specially in recent times. Agriculture is one of the most important subjects of progress and vital for maintaining our economy and independence. Some idea has got around that if the poor famer, who depends on doles and is mostly illiterate, is encouraged, all is well with our Agriculture. This may have a political value, but it makes for uneven development. What we have to do is to convert the poor farmer into one who uses his common sense to increase, improve and protect his crops based on scientific values. It is often forgotten that it is the basic sciences which have helped in the creation of the Green Revolution, so that the backward farmer of the past, has been able to become an economic force. So important has he become that he is now able to claim nearly 50% of the planned budget. Nobody can grudge him that, but one must reflect on how this has happened. What if there were no fertilisers, no insecticides and pesticides (which are over-used anyway), no special seeds etc.? Let me forcefully say, our Agriculture will remain in the forefront not by pampering to the farmer, but by introducing him to the greater but discriminatory use of chemicals and fertilisers, mechanised farming and a broad education to make him more sensitive to modern developments. I see no difference between a suffering urban man and a suffering rural man. Suffering is common to both. Excessive development or depletion in either of them can lead to sad results. In recent years, due to shortage of land, the joint-family system is breaking down. A member, who opts for the armed services during the early part of his adult life, is not all that wanted in his village when he returns. In this way, the newer problems of ex-servicemen have arisen. Even as I see their problems, for our Jawans are essentially rural based, the changing pace and quality of life has to be taken into account. Solutions of the sixties are no longer valid in the 21st century.

Another manifestation of the decline of the scientific method, that is visible to all, is the poor quality of our public utilities. It is amazing to believe that more than 30% of the power that is generated in the country is lost or not accounted for. Even as we look forward to the new century, we must take note of the poor quality of our electrical distribution system and its maintenance. These have a long way to go.

We are a country, which can make very sophisticated items of quality, comparable to that found in developed countries. As examples are the Indian designed reactor—in fact, we maintain reactors designed in India much better than those designed abroad. We make missiles of the most sophisticated quality and yet when it comes to the maintenance of distribution of water

(Contd. on page 23)

Refresher Course in Commerce

The Academic Staff College of Himachal Pradesh University organised its First Refresher Course in Commerce from July 23 to August 11, 1990. The programme pursued the objective of updating the knowledge of senior lecturers of colleges and universities.

In his inaugural address Prof. K.C. Malhotra, the Vice-Chancellor, H.P. University said that because of the growing industrialisation, expanding public sector, increasing size of firms operating in a wide variety of markets and intensified competition both at home and abroad, the commerce education had assumed new horizons. Today India was not only one of the leaders in the developing world, but had emerged as a giant industrial nation. Since independence, industrial output had increased nearby sevenfold. The most conspicuous achievements being reached in respect of basic industries and consumer durables Industries. The capital goods industries had considerably developed. The management of Indian industry had moved comparatively fast from personal owner managed enterprises to family businesses, professionalisation, manager-owner partnership and labour management participation. During previous two decades it is observed that absentee-ownership had opened up new vistas in the fields of management, accounting, finance and taxation.

Prof. Malhotra further said that the modern era had observed far-growing global advancements in the field of electronics and micro computers. The range varied from project and team management to office automation and cybernation. The fusion of micro-electronics with biological, genetic and other engineering innovations not only brings into being new business but spawns different corporate cultures, management styles, accounting practices and taxation policies.

During this programme a number of teaching strategies and techniques were utilised to cover various topics. A band of competent Resource Persons were drawn from the host and the neighbouring universities. The main techniques utilised during the programme were computer aided learning, brain storming, discussions, video presentations, seminars, workshops etc. The course contents of the programme included various topics relating to the developments of commerce education and research in the country, and recent advances in accounting, finance, management, banking and marketing.

The teachers who participated in the programme belonged to various universities such as H.P. University, Guru Nank Dev University, Amritsar; Panjab University, Chandigarh; Kanpur University, (U.P.); Rewa. University (M.P.), and Punjabi University Patiala.

Prof. Lokesh Kaul, Dean of Studies, H.P. University, delivered Valedictory Address. Prof. Kaul said that the quality of higher education in India was steadily declining, as the number of universities, size of colleges, non-seriousness among students and indifference on the part of parents and teachers were increasing. Our society was encountering numerous challenges and amidst these challenges the role of a teacher was becoming vital. Prof. Kaul added that at the level of higher education, the teachers must be trained to develop analytical and evaluative skills among the students and emphasised the importance of Academic Staff College and its programmes such as Refresher Courses.

National Symposium on Microwave Antennas

The Department of Electronics of the Cochin University of Science and Technology will organise the second National Symposium on Microwave Antennas and Propagation during 28-30 November, 1990.

The biennial symposium to commemorate Heinrich Hertz, the 'Father of Electromagnetics', is intended to provide a forum for presentations and discussion on current theoretical and experimental innovations in the field of microwave antennas and propagation. The contributions of expert scientists and engineers in the field are also expected to provide the young talents an exposure to the exciting innovations in the frontier areas of microwave electronics, in general and antennas and propagation in particular.

Technical sessions include talks by experts, tutorials and current-trend lectures. There will be oral presentation of research papers and poster sessions.. Exhibition of sophisticated equipment and books in the field will be a special feature.

Research papers will be on areas relating to: antenna pattern synthesis, antenna theory, array analysis, buried objects, computer-aided antenna design, electromagnetic theory, feeds and radiating elements, frequency selective surfaces, imaging radars, leaky wave antennas, lens and horn antennas, microstrip antennas, microwave components, millimeter wave devices and antennas, phases arrays, reflector antennas and feeds, scattering and diffractions and superconducting microwave devices.

Details can be had from: Prof. K.G. Nair, Chairman (Technical Programme), APSYM-90, Department of Electronics, Cochin University of Science and Technology, Cochin-682 022.

Curriculum at North Gujarat University

The North Gujarat University has embarked upon a phased programme of restructuring its curricula at undergraduate and postgraduate levels. Accordingly, task forces consisting of college teachers, principals and experts have been formed for various subjects. Meanwhile the U.G.C. has made available drafts of model curricula prepared by a number of Curriculum Development Centres in the country. These have provided valuable intellectual input to the task forces.

By now two curricula, one for English and the other for Botany, have been finalised and approved by the Academic Council of the University. They have come in force since June 1990.

The curriculum of English has several innovations in it, the notable being a bridge course for students in need of remedial help both at first year and second year levels and a foundation course for students offering English as a special subject. There is a provision for an oral test and for a comprehensive workbook as a learning tool.

The curriculum of Botany has been modernised and made relevant to the needs and concerns of contemporary life. The component of practical work and field experience has been widened and made socially relevant and productive.

A four-day intensive orientation programme each was organised for the teachers of English and Botany in June 1990. It consisted of discussions, demonstrations teaching, simulations and laboratory practicals. There were workshop sessions to produce assignments, drill material, tests and designs of university Question Papers.

English and the Education System

International languages like English have a vital role in the country's educational system, even as mother-tongue based education was necessary, said Dr. K. Venkatasubramanian, the Vice-Chancellor of the Pondicherry Central University.

There is a strong need for mother tongue-based education, but at the same time neglecting English will lead to our closing the windows on modern knowledge, Dr. Venkatasubramanian said while speaking on Recent Trends in Education.

Citing the instance of Japan which had progressed enormously due to imparting education in Japanese, he said mother-tongue should form the foundation of education, but the superstructure should be international.

Dr. Venkatasubramanian, who was chairman of the working group which drafted the Eighth Plan proposals for education in Tamil Nadu, described the State Government's move to introduce English medium in all the government rural schools as a step in the right direction.

The lecture was organised by the British Council Division, Madras and the Association of British Council Scholars, South India.

He called for modernisation of education at all levels.

He said one of the modern trends in education world-wide was to have a cafeteria model of education, wherein there was no age limit and the learner simply walked in and took whatever he wanted.

This system was far better than to be put through a pre-determined syllabi, which had no reference to felt needs, he added.

Observing that education was now linked to development, he said researches showed that all children get the same grey matter, and given equal opportunities, everybody could come up.

Another notable trend in education now was that more and more parents were taking a hand in education and the teacher was increasingly seen as a guide in the whole educational process, he said.

Personnel Management at IIT, Delhi

To comprehensively examine and suggest improvement in personnel management practices, the Board of Governors of the IIT, Delhi had appointed a Committee under the chairmanship of Prof. M.V. Mathur, former Director, NIEPA. The committee has finalised its report and the main features of its recommendations are: a people-centred approach incorporating effective communication; planned training and career development programmes; interactive appraisal system; improvement in campus amenities and staff welfare measures; simplification and documentation of administrative policies and procedures. The Committee has also recommended that the Board may constitute a Standing Committee to deal with personnel matters, and appoint a senior officer to administer the personnel functions.

M.Tech. in Marine Geophysics

A central assistance of Rs. 1.9 crore has been sanctioned to the Cochin University of Science and Technology for starting a new M.Tech degree course in Marine Geophysics. Jointly sponsored by the Dept. of Ocean Development (DOD), Govt. of India, and the University Grants Commission (UGC) this 6-semester course will be run by the Marine Geology Division of the University's School of Marine Sciences.

A non-recurring grant of Rs. 86 lakhs has been sanctioned for infrastructural facilities like building, books and journals, laboratory and research vessel besides Rs. 50 lakhs for equipment. In addition a recurring grant (nearly Rs. 40 lakhs) to cover the salary of seven faculty positions and hire-charges (Rs. 15 lakhs) for research boats has also been sanctioned.

A main aim of the programme is to generate manpower in the field of marine geophysics as there is acute shortage of qualified marine geophysicists in the country, especially in oil and mineral exploration, Antartic research and survey of our vast 'exclusive economic zone'. It is also aimed at improving the training and research capabilities in these areas.

Candidates selected will get training in areas like Mathematics, Electronics, Geology, Computer Programming, hydrology, seismology and geophysical & offshore explorations. Admissions to this job-oriented course will be on an all-India entrance test basis. Graduates in Geology, Physics, Mathematics etc. can apply. Annual intake will be 10.

Nominations for Hari Om, Pranavananda Awards

The University Grants Commission has invited nominations for the Hari Om Ashram Trust Awards for 1987, 1988 and 1989 and the Swami Pranavananda Awards for 1989 from the universities, research institutions/Organisations, professional societies and national organisations. Nominations of outstanding scientists may be sent to the Commission by 31st Aug., 1990.

The Hari Om Ashram Trust Awards include the Sir C.V. Raman Award for Experimental Research in Physical Sciences, the Homi J. Bhabha Award for Research in Applied Sciences, the Meghnad Saha Award for Research in Theoretical Sciences, the Jagdish Chandra Bose Award for research in Life Sciences; and Hari Om Ashram Trust Award for Interaction between Science and Society. The Swami Pranavananda awards are for Education, Sociology, Economics, Political Science and in Environmental Science including Social Anthropology and Ecology.

These awards carry a cash award of Rs. 10,000/- each and are given to an individual or a team of scientists for outstanding scientific work, carried out in India, which has made important contribution to human knowledge in the areas covered by them during the last five to seven years period.

INSA Awards for Narlikar and Sen

Noted astronomist, Prof. Jayant Vishnu Narlikar, has been awarded this year's Indira Gandhi Prize for popularisation of science by the Indian National Science Academy (INSA).

Prof. Narlikar, who is the Director of the Inter-University Centre for Astronomy and Astrophysics at Pune, has been awarded the prize for his outstanding contribution to popularisation of science through articles, books, films and programmes on television. The prize is awarded once in two years.

Meanwhile, the 1989 Darashaw Nosherwanji Wadia Medal for outstanding contribution in earth sciences, geology, geophysics and geography has gone to Prof. Saurindra Nath Sen, formerly head of the Department of Geology at Calcutta University for his outstanding contribution in the field of 'structural and tectonic interpretation of the precambrian rocks of Rajasthan.

Rs. 2 cr. Grant for Cochin University

The University Grants Commission has granted Rs. 2 crores to the Cochin University of Science and Technology for its developmental activities. This is in addition to the special assistance expected to be released for the development of departments/schools under engineering and technology sector, during the eighth plan period.

The grant includes funds for starting a new centre for special studies on science in society. The centre will provide facilities for scholarly academic pursuits in areas interfacing philosophy of science like environment, people's science movements, languages, law, economy and other social sub-systems. There will also be a series of seminars, talks and symposia on specific topics relating to the multi-disciplinary activities of the centre.

This will be the first of its kind in the country which is sponsored by the University Grants Commission.

Master's Degree in Computer Applications

The Department of Electronics (DOE), Govt. of India has approved starting of a 3-year masters degree course in computer applications at the Cochin University of Science and Technology.

A non-recurring grant of Rs. 5 lakhs for augmentations of computer facility, library and audio-visual aids has been sanctioned by the DOE. In addition, the University Grants Commission will provide grant for recurring expenses.

News from UGC

Countrywide Classroom Programme

Between Ist September to 8th September, 1990 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 12 Noon to 1.00 p.m. The programme is available on the TV Network throughout the country.

Ist Transmission
6.00 a.m. to 7.00 a.m.

1.9.90

"Landscape Painting in Water Colour"

"Yakshaganas in Dravidian Literature"

2.9.90

No Telecast

3.9.90

"Levers"

"Management – 4: Organisation"

"Usar Land Development"

4.9.90

"Performing a Titration"

"Hip: Cemented Arthroplasty"

5.9.90

"Solar Research – II"

"Forts of Deccan – II: Bidar"

"First Meal of the Day"

6.9.90

"The Robots are Coming"

"Visual Anthropology – Concept and Approaches"

"Paninian Linguistics – IV"

7.9.90

"Introduction to Nuclear Astrophysics"

"Divided Mastermind"

"Teaching and Learning English"

8.9.90

"Communication Through Mime"

"Kannada Yakshaganam"

"Ready, Get Set, Go A Programme on Sports"

2nd Transmission
12.00 noon to 1.00 p.m.

1.9.90

"Rabindra Sangeet – I"

"Western Theatre"

2.9.90

No Telecast

3.9.90

"Measuring the Size of Stars"

"Management – 10: Management Information System"

"Le Metro"

4.9.90

"Preparation of Aluminium Chloride"

"Introduction to Visual Aids"

"Iron Armour with a Spoon of Salt"

5.9.90

"Electromagnetic Interference"

"Music in Marble – I: A Programme on Delwara"

"Plant Fossils V: The Moving Biospheres of the Moving Continents"

6.9.90

"Introduction to Microcomputers"

"Hydrological Cycle"

"Is Tense System in English a Problem?"

7.9.90

"Chinese Postman Problem – I"

"Sociology and Social Relevance – I"

"Bamboo – The Miracle Grass"

8.9.90

"Rabindra Sangeet – II"

"A Touch of Adventure – I"

"Modern Art"

Augmenting Computer Facilities

The University Grants Commission has approved an operational plan for the development of computer facilities in universities and colleges at a financial outlay of Rs. 52 crores during the Eighth Five-Year Plan Period.

Under the Plan, 21 new universities have been proposed to be assisted to set up computer centres while 63 of the 104 existing computer centres will be upgraded or strengthened. Six universities will also be given mainframe/large computers. By the end of the Eighth Plan the number of colleges having computers will be around 2,400 as against the present 790 colleges. It is also proposed to provide training to at least three persons each from college including the principal, one teacher and one administrative staff.

At present 72 universities are conducting different technical courses like B.Tech. and M.Tech. in Computer Science, M.Sc. in Computer Science, Diploma in Computer Application (DCA) and Master of Computer Applications (MCA) under the joint programme of Department of Electronics, Government of India, All-India Council for Technical Education (AICTE), and the University Grants Commission. Around 3,000 trained manpower is being produced every year by the universities through these courses.

The Commission started providing assistance to set up computer facilities at the universities/institutions during early seventies for research, education, examination and administration purposes. The programme for colleges was started in 1987 to develop computer awareness among students and help research work. Normally the colleges having science subjects, education, commerce, located in backward and rural areas, and women colleges are given preference in providing assistance for computers.

News from Abroad

International Clearing House

An International clearing house to facilitate co-operation and exchange between institutions across most of the northern hemisphere has been agreed to by members of the International Association of Universities (IAU).

Delegates at the organisation's ninth general conference in Helsinki stressed the importance of building on existing institutional networks such as the IAU, the Conference of European Rectors, the American Council on Education and the Trans-European Mobility Scheme for University Students.

Around 700 rectors, presidents, vice chancellors and representatives from 400 universities attended the conference at Helsinki University to discuss the theme: "University, diversity and interdependence: the missions of the university".

There was strong calls for universities around the world to strengthen their collaborative links, improve their social relevance and more actively support higher education in developing countries.

Other issues discussed included the establishment and financing of mechanisms to promote dialogue between institutions, faculty and student exchanges, institutional development and information exchange.

Delegates supported the idea of creating an international clearing house—already proposed in legislation before the United States Congress—to help institutional co-operation, serve as a central focus for existing information exchange schemes and co-ordinate communication between institutions in North America, Europe and the Soviet Union.

In a keynote address to the conference the director general of Unesco, Federico Mayor, called upon universities to work closer together in the service of the international community and to actively support developing nations.

Today's universities, he said, were under considerable pressure to become more vocational, increase enrolment and compete in the marketplace, and needed to reassess their national and international priorities to take account of these needs.

Although nationally diverse, he continued, universities were also interdependent. Without adequate higher education and research institutions, or access to such facilities abroad, there was little hope for developing countries to master the latest advances or make their own contributions to intellectual and scientific progress.

IAU president, Justin Thorens, said the responsibility of universities remained undiminished despite a world opening up once again to free discourse.

On the Decline of the Scientific Attitude

(Contd. from page 18)

supply, roads, houses, traffic, etc., our scientific sense seems to have evaporated.

As new graduates, you have to ponder over these matters very carefully for, by the time you are in the peak of your activity some 20 years from now, you would like to see better public systems and their maintenance than it is now. Certainly, creating more jobs performed with low efficiency will not solve these problems. You must do everything to increase the scientific quality of life and thinking. Governments and experienced people by themselves cannot solve these problems; there must be a national will in that direction. The youth has always been in the forefront of politics. Why should they now not have their say on organisational and scientific progress by countering inefficiency and sloppiness that beset the country? We should build our nation on lines, which will give returns over a reasonable period of time. In this way, we can avoid moving from delay to delay and crisis to crisis. ☐

AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research Scholars and students of education are welcome to use these resources. The Library is open from 9.00 a.m. to 5.30 p.m. Monday through Friday. Access can also be had through inter library loan for which requisition must be made through your Librarian.

RESEARCH IN PROGRESS

A list of Research Scholars registered for Doctoral Degrees of Indian Universities.

PHYSICAL SCIENCES

Mathematics

1. Agarwal, Dharmendra Kumar. *Some problems on fixed point theorems*. HS Gour. Prof. P.L. Sharma, Department of Mathematics and Statistics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Ajitha Kumari, R. *Semi-group theory*. Kerala. Dr. R. Veeramony, Prof., Department of Mathematics, University of Kerala, Kariavattom.

3. Jain, Sanmat. *Some problems on fixed point theorems*. HS Gour. Prof. P.L. Sharma, Department of Mathematics and Statistics, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

4. Jayakumari, A. *Semi-group theory*. Kerala. Dr. A.R. Rajan, Lecturer, Department of Mathematics, University of Kerala, Kariavattom.

5. Krishna, G.S. *Semi-group theory*. Kerala. Dr. A.R. Rajan, Lecturer, Department of Mathematics, University of Kerala, Kariavattom.

6. Sahu, Mahendra Kumar. *Some problems on fixed point theory*. HS Gour. Prof. P.L. Sharma, Department of Mathematics and Statistics, Dr. Hari Singh Gour Vishwavidyalaya, Sagar.

7. Sreekala, R. *Coding theory*. Kerala. Dr. V. Sathyabhama, Prof. and Head, Department of Mathematics, University of Kerala, Kariavattom.

8. Sujathakumary, S. *Ring theory*. Kerala. Dr. A.R. Rajan, Lecturer, Department of Mathematics, University of Kerala, Kariavattom.

9. Vijayan, Anitha. *Semi-group theory*. Kerala. Dr. K.S.S. Namboodiripad, Prof., Department of Mathematics, University of Kerala, Kariavattom.

Physics

1. Bapna, Suresh Chandra. *Study of low energy electron accelerators for radiation processings*. Devi Ahilya. Dr. R. Bhatnagar, Scientific Officer, Govt. of India, CAT, Rajendar Nagar, Indore.

2. Deorani, S.C. *Study of dielectric and acoustical properties of Barium Titanate, strontium titanate and potassium tantalate ferroelectric perovskites*. Garhwal. Dr. U.C. Naithani, Reader, Department of Physics, HNB Garhwal University, Srinagar.

3. Jagjit Kaur. *Study of passive techniques for cooling*. Devi Ahilya. Dr. M.S. Sodha, Vice-Chancellor, Devi Ahilya Vishwavidyalaya, Indore.

4. Mishra, Mamta. *Some investigations of nonlinear effects and polarization in conventional and new particle acceleration techniques*. Devi Ahilya. Dr. P. Rambabu, Asstt. Prof., School of Physics, Devi Ahilya Vishwavidyalaya, Indore.

5. Neena. *Study of heavy fermion systems—transport properties*. HP. Dr. K.C. Sharma, Department of Physics, Himachal Pradesh University, Shimla.

6. Parikh, Shilpa. *Some studies on macroscopic energy of a nucleus in the energy density formalism*. Devi Ahilya. Dr. A.K. Dutta, Reader, School of Physics, Devi Ahilya Vishwavidyalaya, Indore.

7. Sen, Kuldeep Singh. *Study of electromagnetic properties in medium weight nuclei on interacting boson model*. HP. Dr. S.P. Sud, Department of Physics, Himachal Pradesh University, Shimla.

Chemistry

1. Jyothikumari, K.R. *Synthesis of some furopyrrolo and pyrazolo pyrimidines*. Kerala. Dr. C.P. Joshua, Prof. and Head, Department of Chemistry, University of Kerala, Kariavattom.

2. Pandey, Anuradha. *Studies of indicators and reagents for non-aqueous titrimetry*. Devi Ahilya. Dr. S.L. Garg, Prof. and Head, Department of Chemistry, Govt. Girls Post Graduate College, Indore.

3. Phadke, Aparna. *Chemical studies of polyurethanes with special reference to its anti-corrosive properties*. Devi Ahilya. Dr. S.L. Garg, Prof. and Head, Department of Chemistry, Govt. Girls Post Graduate College, Indore.

BIOLOGICAL SCIENCES

Biochemistry

1. Laladhas, K.P. *Mechanism of parasite survival*. Kerala. Dr. R. Kaleysa Raj, Department of Biochemistry, University of Kerala, Kariavattom.

2. Venkaiah, Betapudi. *Enzymes of starch metabolism in Jowar, Sorghum vulgare*. Devi Ahilya. Dr. Anil Kumar, Reader, School of Biochemistry, Devi Ahilya Vishwavidyalaya, Indore.

Botany

1. Mathew, Sam P. *Floristic study of South Andaman with special reference to Mount Harriet*. Kerala. Dr. Susan Abraham, Prof., Department of Botany, University of Kerala, Kariavattom and Prof. A. Abraham (Retd.), University of Kerala, Kariavattom.

2. Pancholi, Kislay. *Morphological studies in the Fabaceae (Papilionaceae)*. Devi Ahilya. Dr. V.B. Diwanji, Prof. and Head, Department of Botany, Holkar Science College, Indore.

3. Saxena, Usha. *Combining ability analysis of juice percentage, sucrose percentage, grain yield and other agronomic characters of sorghum, Sorghum bicolor (L) Moench*. Devi Ahilya. Dr. S. Verma, Principal, Kasturbagram Rural Institute, Kasturbagram, Indore.

4. Shrivastava, Devendar Kumar. *Diallel analysis of yield and yield grain components of Triticale (X Triticosecale) over environments*. Devi Ahilya. Dr. S. Verma, Principal, Kasturbagram Rural Institute, Kasturbagram, Indore.

5. Upadhyaya, Padma. *Role of phylloplane mycoflora in biological control of foliar plant pathogens of wheat*. Devi Ahilya. Dr. Y.M. Upadhyaya, Senior Scientist (Retd.), IARI Regional Station, Indore.

6. Vivrekar, Sadhana Sunil. *Studies on seasonal occurrence of aquatic fungi of Indore with special reference to water quality*. Devi Ahilya. Dr. Bholeshwar Dube, Asstt. Prof., Department of Botany, Holkar Science College, Indore.

7. Vyas, Aditya. *Biocontrol of soil borne pathogenic fungi, Sclerotium rolfsii and Rhizoctonia bataticola under soybean wheat cropping sequence*. Devi Ahilya. Dr. Yogendra Mohan Upadhyaya, Senior Scientist (Retd.), Jawaharlal Nehru Krishi College, Indore.

Zoology

1. Dhol, R.R. *Studies on the effects of heavy metal salts on the freshwater bivalve mollusc from Krishna river*. Shivaji. Dr. D.V. Muley, Department of Zoology, Shivaji University, Kolhapur.

2. Kesharvani, Jalaj. *Studies on the neuroendocrine complex in three invertebrate animals*. HS Gour. Dr. D.P. Gupta, Department of Zoology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

3. Parmod Kumar. *Ecology and behaviour of rhesus macques, Macaca mulatta and hanuman langurs, Presbytis entellus in Shimla*. HP. Dr. L.R. Verma, Department of Bio-Sciences, Himachal Pradesh University, Shimla.

4. Sanjivan Kumari. *Reproductive biology and biometry of Asian hive bee, Apia cerana F.* HP. Dr. L.R. Verma, Department of Bio-Sciences, Himachal Pradesh University, Shimla.

Medical Sciences

1. Bhatiya, Anil. *Drug interaction studies of some anti-microbial agents*. Devi Ahilya. Dr. R.S. Gaud, Reader, College of Pharmacy, Shri G.S. Institute of Technology and Science, Indore.

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities.

PHYSICAL SCIENCES

Mathematics

1. Balbir Singh. *Mathematical models for oxygen and carbon dioxide transport in the pulmonary and systemic capillaries*. IIT Delhi. Prof. M.P. Singh, Centre for Atmospheric Sciences, Indian Institute of Technology, Delhi and Dr. Maithili Sharan, Centre for Atmospheric Sciences, Indian Institute of Technology, Delhi.

2. Bist, Vikas. *The structure of unit groups of group rings*. IIT Delhi. Dr. J.B. Srivastava, Department of Mathematics, Indian Institute of Technology, Delhi.

3. Jamwal, Hardev Singh. *On the principle of exchange of stabilities in some magnetohydrodynamic stability problems*. HP.

4. Mahmood Bidkham. *On extremal properties and location of zeros of polynomials*. Jamia. Dr. (Smt.) Kum Kum Dewan, Reader, Department of Mathematics, Jamia Millia Islamia, New Delhi.

5. Narayanan, P. Sambath. *Laminar boundary layers with heat and mass transfer*. IIT Delhi. Dr. Prem Kumar, Department of Mathematics, Indian Institute of Technology, Delhi.

6. Rajive Kumar. *Numerical methods for nonlinearly damped oscillators*. IIT Delhi. Prof. M.K. Jain, Vice-Chancellor, Awadhesh

Pratap Singh University, Rewa and Prof. R.K. Jain, Department of Mathematics, Indian Institute of Technology, Delhi.

7. Sree Devi, Sridhar Usha. *Non-standard, standard approximation reduction techniques and contributions to some popular areas.* Andhra.

Statistics

1. Batra, Urmil. *Some investigations on irregular fractional factorial experiments.* Delhi.

2. George, Sabu. *Studies on certain distributions attracted to the stable law.* Kerala. Prof. R.N. Pillai, Head, Department of Statistics, University of Kerala, Kariavattom.

3. Jayant Singh. *Some inference procedure for unbalanced random models.* Vikram. Dr. R.C. Jain, Asstt. Prof., Department of Statistics, Vikram University, Ujjain.

4. Kulkarni, Raja Vithalrao. *A study of the optimal inventory policies.* Shivaji. Dr. M.S. Prasad, Head, Department of Statistics, Shivaji University, Kolhapur.

5. Subbi Reddy, M. *Econometric analysis and comparison of Indian industrial manufacturing sector with Andhra Pradesh Industrial Manufacturing Sector.* Venkateswara. Dr. C. Subbarami Reddy, Department of Statistics, Sri Venkateswara University College, Tirupati.

Astronomy

1. Srinivasa Chary, K.B. *Radio studies of meteors.* Osmania.

Physics

1. Arun Kumar, B.S. *NMR spectroscopy of oriented systems: Studies at and near magic angle sample spinning.* IISc.

2. Bardoloi, Indira. *Studies on the hydrogen burning cycles on accreting neutron star surface.* Gauhati. Dr. Hiralal Duorah, Prof., Department of Physics, Gauhati University, Guwahati.

3. Barua, Madhumita. *Some problems in relativistic astrophysics and cosmology.* Gauhati. Dr. K.D. Krori, Principal, Cotton College, Guwahati.

4. Basu, Padmanabha. *Application of the double core model in explaining the details of low energy, binary fission including its dynamics.* Calcutta.

5. Damle, Ramakrishna. *Wide-line and pulsed NMR instrumentation and investigations in certain hydrazinium metal halides.* IISc.

6. Das, Sailendranath. *Investigation of some iron cyanide complexes by Mossbauer spectroscopy.* Calcutta.

7. Deb, Anis. *On Walsh domain analysis of power electronic systems.* Calcutta.

8. Diggavi, Supriya N. *Design and analysis of fiber and integrated optic polarization devices.* IIT Delhi. Dr. K. Thyagarajan, Department of Physics, Indian Institute of Technology, Delhi and Dr. B.P. Pal, Department of Physics, Indian Institute of Technology, Delhi.

9. Jacob, Subhash. *Studies on cryogenic multilayer insulations and the development of cryogenic containers.* IISc.

10. Jayaraj, M.K. *Fabrication and study of zinc sulphide based electro luminiscent devices.* CUST. Dr. C.P. Girijavallabhan, Prof., Department of Physics, Cochin University of Science and Technology, Cochin.

11. Kompella, Jacintha. *Modeling and analysis of optical fibers and fiber devices.* IIT Delhi. Prof. A.K. Ghatak, Department of Physics, Indian Institute of Technology, Delhi and Dr. Anurag Sharma, Department of Physics, Indian Institute of Technology, Delhi.

12. Madhusudhan Rao, B. *Acoustic nonlinearity based elastic properties of some cubic crystals.* Osmania.

13. Majumdar, Chayanika. *On certain aspects of size quantization and degenerancy of carriers in low dimensional semiconductors.* Calcutta.

14. Manickam, N. *The fluorescence of manganese in mixed sulphate glasses and crystalline medium.* IISc.

15. Mehta, Mayank R. *Studies on supercurrent and super-conformal current anomalies.* IISc.

16. Mohan, Kundu Murari. *Some aspects of weak currents in gauge theories.* Visva-Bharati. Prof. Asim Kumar Ray, Department of Physics, Siksha Bhavana, Visva Bharati, Santiniketan.

17. Nagaraj, B.S. *Study of molecular vibrations and allied physical properties of chemical compounds and single crystal by physical methods.* Bangalore. Dr. C. Raghavendra Rao, Reader, Department of Physics, Jnana Bharathi Campus, Bangalore University, Bangalore.

18. Navil Kumar, R. *Electrical and photoacoustic studies on phase transitions in certain ammonium containing crystals.* CUST. Dr. C.P. Girijavallabhan, Prof., Department of Physics, Cochin University of Science and Technology, Cochin.

19. Philip, Daizy. *Vibrational spectra of certain phosphates and arsenates and copper (II) formate bisurea dihydrate.* Kerala. Dr. G. Aruldhas, Prof., Department of Physics, University of Kerala, Kariavattom.

20. Rajagopal, P. *Vibrational spectra of certain sulphates and tartrates and a study on proton conduction in* $(NH_4)_3H(SO_4)_2$ *and* $Li_2SO_4H_2O$. Kerala. Dr. G. Aruldhas, Prof., Department of Physics, University of Kerala, Kariavattom.

21. Rajeev Kumar, K. *Electrical conduction and dielectric behaviour of thin films of vacuum evaporated amorphous silicon, hydrogenated amorphous silicon and chemically deposited cadmium sulphide.* CUST. Dr. K. Sathianandan, Prof. (Retd.), Department of Physics, Cochin University of Science and Technology, Cochin.

22. Rao, Rekha. *Studies on the spectra of many atomic molecules.* Karnatak. Dr. M.A. Shashidhar, Reader, Department of Studies in Physics, Karnatak University, Dharwad.

23. Raveendran, A.V. *Studies of pulsating carbon stars.* Bangalore. Dr. M.N. Anandaram, Department of Physics, Jnana Bharathi Campus, Bangalore University, Bangalore.

24. Sathiaraj, T. Stephen. *Optical properties and solar selectivity of*

RF planar magnetron sputtered Ni-Al_2O_3 composite films. IIT Delhi. Prof. O.P. Agnihotri, Department of Physics, Indian Institute of Technology, Delhi.

25. Shah, Gaalav. *X-ray spectroscopic studies of rare earths: Compounds and intermetallics*. Vikram. Dr. S.N. Gupta, Prof., Department of Physics, Vikram University, Ujjain.

26. Sinha, Murari Mohan. *Lattice dynamics of mixed superionic fluorites and mixed layered structure crystals*. IIT Delhi. Prof. B.B. Tripathi, Department of Physics, Indian Institute of Technology, Delhi and Dr. H.C. Gupta, Department of Physics, Indian Institute of Technology, Delhi.

27. Sridhar, S. *Some exact analytic models of time dependent collisionless stellar systems*. IISc.

28. Subrahmanyan, Ravi. *Observational constraints on the formation of pre-galactic condensates in the universe*. IISc.

29. Tankeshwar Kumar. *Transport and dynamical properties of classical dense fluids*. Panjab.

30. Verma, Suram Singh. *Investigations on erosion and transport properties in MHD generators*. IIT Delhi. Dr. B.K. Sawhney, Department of Physics, Indian Institute of Technology, Delhi.

31. Vijayakumar, D. *Experimental studies on sound propagation in shallow waters of the West Coast of India*. IISc.

32. Vijayaraghavan, D. *Pulsed NMR instrumentation and investigations of molecular dynamics and phase transitions in ABX_3 compounds*. IISc.

Chemistry

1. Aithal, U. Shantha Moorthy. *Transport studies through polymer membranes*. Karnatak. Dr. T.M. Aminabhavi, Reader, Department of Studies in Chemistry, Karnatak University, Dharwad.

2. Ashok, K. *A novel rearrangement of 3-arylisoxazole 2-En-5-ones to 2,4 dichloro-3-formyl-quinolines and synthesis of new quinolino fused heterocycles*. Osmania.

3. Ashrof, M.A. *Analytical and synthetic investigations of natural products and synthetic experiments in nitrogen and oxygen rings*. Kerala. Dr. P.S. Raman, Prof. (Retd.), 39/987, Karikamuri Cross Road, Ernakulam, Cochin.

4. Balakrishna, M.S. *Synthetic, spectroscopic and structural studies on transition metal complexes of diphosphazane ligands*. IISc.

5. Chakrabarti, Sarmishtha. *Analytical studies on bioinorganic complexes of metals and metalloid*. Calcutta.

6. Chakraborty, Chanchal Kumar. *Phytochemical studies on Indian medicinal plants*. Visva Bharati. Dr. I. Basumallick, Department of Chemistry, Siksha Bhavana, Visva Bharati, Santiniketan.

7. Chatterjee, Jyoti Prakash. *Thermodynamic studies on solute-solvent interactions in some selected aqueous polyols*. Visva Bharati. Dr. B.P. Das, Department of Chemistry, Siksha Bhavana, Visva Bharati, Santiniketan.

8. Choudhury, Barun Roy. *Search for potential organic pesticides*. Visva Bharati. Prof. K.S. Mukherjee, Department of Chemistry, Burdwan University, Burdwan.

9. Damle, Anand Nilkanth. *Studies on some important parameters in electrodeposition of metals and alloys*. Shivaji. Dr. D.S. Ambardekar, Durga. Apartments, 10, Mali Colony, Takala, Kolhapur.

10. Deb, Dilipkumar. *A multiconfigurational study on the self-consistent field procedures*. Calcutta.

11. Deshmukh, Jaysingrao Ganpatrao. *Polymer supported reactions in organic synthesis*. Shivaji. Dr. M.M. Salunkhe, Department of Chemistry, Shivaji University, Kolhapur.

12. Gaur, Rajesh Kumar. *Newer methods for the synthesis, purification and modification of oligodeoxynucleotides and their characterization*. Delhi.

13. Gautam, Guntu Madhu. *Analytical redox applications of iron (II) in strong phosphoric acid medium*. Andhra.

14. Gopala Krishna, Kovvali. *Physicochemical studies on the interaction of some ligands with DNA and sodium dodecyl sulphate*. Delhi.

15. Homendra, Naorem. *Physico-chemical and thermodynamic investigations of some binary liquid mixtures of furfural*. IIT Delhi. Dr. S.K. Suri, Department of Chemistry, Indian Institute of Technology, Delhi.

16. Karanjai, Manju. *Organotin derivatives of carbonyl activated unsaturated organic compounds and their Lewis acid characters*. NBU.

17. Mohite, Chandrakant Vasudeorao. *Studies on solution chemistry of some metal complexes with thioligands*. Shivaji. Dr. M.B. Chavan, Department of Chemistry, Shivaji University, Kolhapur.

18. Nag, Swapan Kumar. *Chemical investigation on terpene isolation, structure elucidation, synthesis and reaction in triterpenes*. NBU.

19. Narasimha Murthy, N. *Novel reactions of copper (I) phenoxide with heteroallenes: A synthetic and structural study*. IISc.

20. Patel, Mayur Babubhai. *Studies on CNSL oil based resin*. Patel. Prof. V.S. Patel, Head, Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar.

21. Patel, Rasmika Harmanbhai. *Studies on modified epoxy resins*. Patel. Dr. (Miss.) R.G. Patel, Reader, Department of Chemistry, Sardar Patel University, Vallabh Vidyanagar.

22. Pawar, Pandurang Krishna. *Kinetics and mechanism of oxidation of hydrazides by alkaline heracyanoferrate (III)*. Shivaji. Dr. M.B. Hogale, Department of Chemistry, Shivaji University, Kolhapur.

23. Raghavan, Mala. *Studies on covalently linked chlorophyllporphyrin systems*. IISc.

24. Saha, Sabita. *Chemical constituents of Plumbago zeylanica and other medicinal plants*. Calcutta.

25. Salunkhe, Deepak Govindrao. *Polymer supported reactions*. Shivaji. Dr. M.M. Salunkhe, Department of Chemistry, Shivaji University, Kolhapur.

26. Sreedhar, K. *Studies on superconducting and related ternary, quaternary copper oxide systems: Correlation between structure and electronic properties.* IISc.

27. Ullagaddi, Ashok. *Studies on heterocyclic compounds of biological interest.* Gulbarga. Dr. M.G. Purohit, Reader, Department of Chemistry, Gulbarga University, Gulbarga.

28. Venkateswara Rao, B. *Synthesis of fredericamycin A.* Osmania.

29. Vijayamohanan, K. *Studies on porous iron electrodes for alkaline storage batteries and supplementary investigations on porous lead electrodes of lead-acid batteries.* IISc.

30. Vyas, K. *Crystallographic aspects of thermally induced organic solid state reactions.* IISc.

Earth Sciences

1. Dhagat, Jayant Bhai. *Hydrogeological investigations in the Bila Command Area, Madhya Pradesh.* HS Gour. Dr. L.P. Chourasia, Reader, Department of Applied Geology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

2. Kar, Sarat Chandra. *Mesoscale circulation over the Andaman Islands: Numerical simulations.* IIT Delhi. Dr. N. Ramanathan, Centre for Atmospheric Sciences, Indian Institute of Technology, Delhi.

3. Kishore, A. *Petrological and geochemical studies of Jamalapuram area, Khammam District, Andhra Pradesh, India.* Osmania.

4. Lingaraju, Y. *Mode of occurrence of groundwater in Archaean Terrain: A case study in Palar Basin, Kolar District, Karnataka.* Bangalore. Prof. B. Mahabaleswar, Department of Geology, Jnana Bharathi Campus, Bangalore University, Bangalore.

Engineering & Technology

1. Banerjee, Subhashis. *On stochastic relaxation paradigms for computational vision.* IISc.

2. Bhat, Chitrasena. *On the design of maximum folded programmable logic arrays for VLSI systems.* IISc.

3. Bhat, Ganapati S. *A dynamical system that mimics shear flow turbulence.* IISc.

4. Behera, Bijoya Kumar. *Some studies on high pressure squeezing in sizing.* IIT Delhi. Prof. P.K. Hari, Department of Textile Technology, Indian Institute of Technology, Delhi; Dr. Jai Prakash, Director, NITRA, Ghaziabad and Dr. Krishna Dhawan, D 4/8, Model Town, Delhi.

5. Chandraseckariah, H.S. *Effect of foundry variables on structure and properties of investment cast nickel base super alloy PK 24 (IN 100).* IISc.

6. Chelpa, Lingam Murty. *Some system theoretic investigations for the analysis of complex systems.* IIT Delhi. Prof. P.S. Satsangi, Department of Electrical Engineering, Indian Institute of Technology, Delhi.

7. Deshpande, Shrirang Dattatraya. *Some facility planning techniques for construction site layouts.* IIT Delhi. Prof. S. Krishnamoorthy, Department of Civil Engineering, Indian Institute of Technology, Delhi and Dr. V.B. Deshpande, Department of Civil Engineering, Indian Institute of Technology, Delhi.

8. El-Kholy, Said Abd El-Fattah. *Studies on lightweight fibrous ferrocement in compression, tension and flexure.* IISc.

9. Hiremath, B.M. *Investigation of flow over Delta wings with leading edge separation.* IISc.

10. Krishnamoorthy, Iyer, P. *Investigations on DC dynamic breaking behaviour of linear induction machines with ferromagnetic secondary.* Kerala. Dr. K.P. Parameswaran Pillai, Joint Director, Directorate of Technical Education, Trivandrum and Dr. S. Hariharan, Prof., Department of Electrical Engineering, Manipal Institute of Technology, Manipal.

11. Manohar, C.S. *Random vibration of limit cycle systems and stochastic strings.* IISc.

12. Moona, Rajat. *Design and implementation of a multidimensional multilink-multicomputer hardware and software.* IISc.

13. Nar Singh. *Performance evaluation of receivers in digital coherent optical fiber communication systems.* IIT Delhi. Prof. H.M. Gupta, Department of Electrical Engineering, Indian Institute of Technology, Delhi and Dr. V.K. Jain, Department of Electrical Engineering, Indian Institute of Technology, Delhi.

14. Prabhakar, S.V.R.K. *Diagnostic reasoning with surface and deep level knowledge in medical domain.* IISc.

15. Rama Rao, Darapuneni. *Studies on property structure correlations in some wool fibres.* IIT Delhi. Prof. V.B. Gupta, Department of Textile Technology, Indian Institute of Technology, Delhi.

16. Sachdeva, Bakshi Lal. *Studies on dynamics of rigidly/flexibly coupled pneumatic free-piston machines.* IIT Delhi. Prof. K.N. Gupta, Department of Mechanical Engineering, Indian Institute of Technology, Delhi.

17. Saha, Rathindra Lal. *Casting technology for titanium and titanium alloys: Characterisation of metal-mould reactions in zircon sand and investment moulds and evaluation of a hypoeutectic cast Ti-Si alloy.* IISc.

18. Sahasrabudhe, A.D. *An efficient three-dimensional finite element analysis of simple and extended tube expansion chamber mufflers.* IISc.

19. Sampath, V. *Electroslag refining and structure property correlation studies of the aluminium alloy IS : 7670.* IISc.

20. Saxena, Sanjeev. *Design and analysis of some combinatorial and computational geometry problems for parallel execution.* IIT Delhi. Dr. V.C. Prasad, Department of Electrical Engineering, Indian Institute of Technology, Delhi and Prof. P.C.P. Bhatt, Department of Computer Science and Engineering, Indian Institute of Technology, Delhi.

21. Seetharamaiah, Panchumarthy. *A functional approach to test generation and fault localisation of microprocessors using instruction petri nets.* Andhra.

22. Singh, Sanjay. *Ion acoustic soliton propagation and reflection in*

inhomogeneous plasmas: Analytical investigations. IIT Delhi. Dr. R.P. Dahiya, Centre for Energy Studies, Indian Institute of Technology, Delhi.

23. Singh, Surendra Kumar. *Extraction enhancement of coal through alkali treatment and pyrolysis and gasification of residual coals obtained after solvent extraction*. IIT Delhi. Dr. D.K. Sharma, Centre for Energy Studies, Indian Institute of Technology, Delhi.

24. Sridhar, M.K. *On the direct parallel solution of systems of linear equations: New algorithms and computational structures*. IISc.

25. Srikanth, S. *Thermodynamics of alloys: Theory, experiment and application*. IISc.

26. Srinivasa, G.R. *Investigation of mixed flow impeller*. IISc.

27. Sundaram, P. *Fracture studies in Cr. Mo low alloys structural steels*. IIT Delhi. Dr. R.K. Pandey, Department of Applied Mechanics, Indian Institute of Technology, Delhi and Dr. A.N. Kumar, Department of Applied Mechanics, Indian Institute of Technology, Delhi.

28. Sundararaman, D. *Phase transformations in Ti-N and Ti-Fe-N alloys and superconductivity*. IISc.

29. Venkateshaiah, G.R. *Studies on the prebreak-down and breakdown phenomena in binary and ternary gas mixtures containing Sl and CCl_2F_2*. IISc.

30. Visweswara Rao, G. *Vibration of cables under deterministic and random excitations*. IISc.

31. Yelloji Rao, M.K. *Electrochemical aspects of interactions among ball materials and minerals with reference to grinding and flotation of complex copper-lead-zinc sulphides*. IISc.

SCHOOL OF CORRESPONDENCE COURSES

ANDHRA UNIVERSITY, VISAKHAPATNAM

ADMISSION NOTIFICATION

Applications are invited from the candidates residing in India for admission into the following courses in the School of Correspondence Courses for the academic year 1990-91 for the courses 1 to 4 and for the calendar year 1990 in the case of courses from 5 to 7.

COURSE	ELIGIBILITY
I. 6 MONTHS FOUNDATION COURSE:	
1. Introductory Course (both English and Telugu media). This course is offered to prepare the candidates for Entrance Examination to be held in June, 1991 for Liberalized admission into B.A./B.Com. Courses without any formal academic qualification by supplying study material.	No formal academic qualifications are needed. But the candidate should have completed 20 years of age by 1.7.91.
II. THREE YEAR DEGREE COURSES:	
2. B.A. (both English and Telugu media) with the combinations of Spl. English, Spl. Telugu, History, Economics, Politics, Public Administration, Sociology and Mathematics.	Intermediate/P.U.C. or Equivalent or pass in the Entrance Examination conducted by this School.
3. B.Com. (both English and Telugu media).	Intermediate/P.U.C. or equivalent or pass in the Entrance Examination conducted by this School.
4. B.Sc. (English medium only) with the combination of Mathematics, Physics and Chemistry.	Intermediate/P.U.C. or equivalent with Physical Sciences and Mathematics.
III. ONE YEAR POSTGRADUATE DIPLOMA COURSES—CALENDAR YEAR BASIS:	
5. Post-graduate Diploma in Translation (Telugu Medium).	B.A. Main Telugu or Ancillary or general Telugu; B.Com. general Telugu; B.Sc. Two years Telugu; Bhasha Praveena with any recognized degree; B.A. (OL).
6. Post-graduate Diploma in Environmental Studies (English medium).	Candidates should have passed any degree examination of this University or any other University which is recognized by this University as equivalent thereto.
7. Post-graduate Diploma in Functional English	Candidates should have passed any degree examination of this University or any other University which is recognized by this University as equivalent thereto.

Applications will be issued from 25.8.1990. Filled-in applications should reach the undersigned on or before **31.10.1990.**

Intending candidates may write to the undersigned by Designation for Application Form and Prospectus by sending Rs. 10/- by Demand Draft/Money Order in favour of the Director, School of Correspondence Courses, Andhra University, Waltair-530 003.

The candidates have to write their name, address and course for which they want the prospectus on the back of the D.D. or M.O. coupon whichever is applicable. The candidates may also remit cash at the CASH COUNTER of the School of Correspondence Courses towards Application Form and Prospectus. **Postal Orders and Cheques will not be accepted.**

OTHER PLACES OF SALE OF APPLICATIONS:

The Admission Application Forms and Prospectus are also available, besides at the School, at the following places:

(A) **At New Delhi:** (1) Sales counter, Association of Indian Universities, A.I.U. House, 16, Kotla Marg; (2) Sales counter, Andhra Pradesh Bhavan, 1 Ashoka Road and (3) Sri Venkateswara College, Dhoula Kuoan, New Delhi.

(B) **Study Centers:** The Admission Application forms and Prospectus are also available at the following Study Centres in the State of Andhra Pradesh: (1) Government College, Srikakulam; (2) M.R. College, Vizianagaram; (3) Mrs. A.V.N. College, Visakhapatnam; (4) Government College, Rajahmundry; (5) P.R. Government College, Kakinada; (6) Sir C.R. Reddy College, Eluru; (7) S.R.R. & C.V.R. Govt. College, Vijayawada; (8) A.C. College, Guntur; (9) D.N.R. College, Bhimavaram; (10) A.B.M. College, Ongole; (11) Silver Jubilee College, Kurnool; (12) Indian Institute of Management and Commerce, Hyderabad; (13) A.M.A.L. College, Anakapalli; (14) R.S.R. & K.R.R. College, Bobbili; (15) Noble College, Machilipatnam; (16) V.S.R. & N.V.R. College, Tenali; (17) Government Degree College, Narasannapeta; (18) S.S. & N. College, Narsaraopeta and (19) S.G.S. College, Jaggayyapeta.

The School has no agents and takes no responsibility for prospectus issued and promises made for admission by any other institution.

Special Note for the Successful Candidates in the B.A./B.Com. Entrance Examination of July, 1990.

All the successful candidates in the B.A./B.Com. Entrance Examinations held in July, 1990 need not apply for the admission application form and prospectus for admission into 1st year Degree Course. The School will arrange to send the admission application form and prospectus along with the Marks Statement-Cum-Eligibility Certificate to such candidates. They have to pay an amount of Rs. 10/- towards the cost of admission application form and prospectus along with the prescribed tuition fee at the time of admission. However, the duly filled-in admission application form along with the necessary enclosures including Demand Draft/M.O. Receipt towards prescribed fee should reach the School of Correspondence Courses on or before the prescribed last date.

Waltair
11.8.1990.

Prof. V. Abraham
DIRECTOR

NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

TRAINING PROGRAMME IN EARLY CHILDHOOD EDUCATION

Applications are invited from key functionaries of Non-Governmental Organisations (NGOs) running Early Childhood Education Centres for training of two week duration in Early Childhood Education. Total seats in one programme will be 35. ***First training programme will be held from 5th November to 16th November, 1990***

- Training will be free of cost.
- TA/DA will have to be borne by the NGO concerned.
- Lodging/boarding facilities can be made available at NCERT Guest House on payment basis.

Application alongwith detailed biodata should reach at the following address by **10th September, 1990.**

Head,
Department of Pre-School &
Elementary Education,
NATIONAL COUNCIL OF EDUCATIONAL
RESEARCH & TRAINING
Sri Aurobindo Marg,
New Delhi-110016.

davp 90/389

OFFICE OF THE REGISTRAR

KAKATIYA UNIVERSITY

WARANGAL

No. 874/A2/KU/90

Dated : 10.8.1990

ADVERTISEMENT NO. 2/90

Applications are invited in the prescribed form for the following posts in the Kakatiya University Service so as to reach the undersigned on or before **24.9.1990.**

Sl. No.	Department	Category	No. of Posts
1	2	3	4
GROUP-I			
(1)	Political Science	(i) Reader	1
		(ii) Lecturer	1
(2)	English	(i) Reader	1
		(ii) Lecturer	1 + 1**
(3)	Law	(i) Reader	1*
		(ii) Lecturer	1 + 1**
(4)	Commerce	Lecturer	1**
(5)	Telugu	Lecturer	1**
(6)	Physical Education	Lecturer	5**
(7)	Economics	Lecturer	2
(8)	Education	Lecturer	2
(9)	History	Lecturer	1
GROUP-II			
(1)	Botany	(i) Professor	1
		(ii) Lecturer	1
(2)	Chemistry	Lecturer	1
(3)	Geology	(i) Reader	1*
		(ii) Lecturer	2*
(4)	Physics	Lecturer	1* (For Theoretical Particle Physics)
(5)	Mathematics	(i) Reader	1
		(ii) Lecturer	1
GROUP-III			
(1)	Pharmacy	Lecturer	1

GENERAL-NON-TEACHING

1. Computer Centre	
(i) Systems Incharge	1**
(ii) Programmer	1**
(iii) Computer Operator	1**
(iv) Technical Assistant	1**
2. Statistical Assistant	1
3. Glass Blower	1

*VII Plan Posts Notified for the second time.

**VII Plan Posts subject to the concurrence of the State Government.

RESERVATIONS

15%, 6% and 25% reservations as per roster system are made for the candidates belonging to Scheduled Caste, Scheduled Tribe and Backward Classes respectively for the post of Readers and Lecturers only.

The number of posts reserved for various categories as per roster system are as under:

Category	Total	OC	SC	ST	Backward Class			
					A	B	C	D
GROUP-I								
Reader	3	1	2	—	—	—	—	—
Lecturer	17	10	1	2	1	1	—	2
GROUP-II								
Reader	2	—	1	1	—	—	—	—
Lecturer	6	1	3	1	1	—	—	—
GROUP-III								
Lecturer	1	1	—	—	—	—	—	—

GROUP-I : Arts, Commerce, Business Management, Law, Social Science & Education including all languages.

GROUP-II : Sciences.

GROUP-III : Engineering & Technology (Pharmacy)

Category	Total	OC	SC	ST	Backward Class			
					A	B	C	D
Systems Incharge	1	1	—	—	—	—	—	—
Programmer	1	1	—	—	—	—	—	—
Computer Operator	1	1	—	—	—	—	—	—
Technical Assistant	1	1	—	—	—	—	—	—
Statistical Assistant	1	1	—	—	—	—	—	—
Glass Blower	1	1	—	—	—	—	—	—

Prescribed application forms can be obtained from the Office of the Incharge, Publication Cell, Registrar's Office, Kakatiya University, Vidyaranyapuri, Warangal-506 009 in person or by Post by sending a self-addressed envelope affixing postage stamps worth Rs. 4/- on payment of Rs. 20/- either by a Challen payable at the State Bank of Hyderabad, Kakatiya University Branch or by sending a Crossed Demand Draft in favour of the Registrar, Kakatiya University, Warangal. **Money Orders and Postal Orders will not be accepted.**

THE UNIVERSITY RESERVES THE RIGHT TO FILL OR NOT TO FILL ALL OR ANY OF THE POSTS.

Details of qualifications, specific specialisations and experience prescribed in respect of the above (including the particulars and precise branch of specialisation which is needed and also the preferential qualifications considered desirable) will be furnished along with the application form.

The applications received after the last date/and/or incomplete are liable to be rejected and no interim enquiries will be entertained. Separate application form is required to be submitted for each category.

Applications from employees working in any organisation will be considered only if forwarded through proper channel. However, such employees can send an advance copy to avoid delay.

Canvassing in any form will be a disqualification.

FURTHER, THIS UNIVERSITY ADVERTISEMENT NO. 2/89 BEARING NO. 682/A2/KU/89 DATED: 19.5.1989 INVITING APPLICATIONS FOR THE VARIOUS POSTS IN THE UNIVERSITY SERVICE MAY BE TREATED AS CANCELLED.

Prof. Digamber Rao
I/c REGISTRAR

NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

ADVERTISEMENT NO. TR-5

Special Recruitment Drive for SC/ST Candidates

National Council of Educational Research and Training invites applications for the following posts:

1. CHIEF EDITOR: One post (Reserved for SC)
Educational Qualifications and Experience: (i) A Master's degree from a recognised University. (ii) Minimum 10 years experience in compiling, editing, planning and supervising of publications, especially school textbooks, monographs and reports in organisation of repute. (iii) Knowledge of printing techniques and of typography and should be proficient in English.

2. SR. TECHNICAL OFFICER: One post (Reserved for SC)
Educational Qualifications & Experience: Essential: (i) A good degree in Mechanical or Electrical Engineering. (ii) At least 7 years professional experience in a responsible capacity in handling maintenance of plant, equipment and store-purchase. **Desirable:** (i) Knowledge of maintenance of plant and equipment (involving Mechanical & Electrical repairs). (ii) Knowledge of Govt. of India rules relating to purchase of Stores, finance etc., should have adequate experience in dealing with stores procedures including receipts and issues, custody, codification, inventory control and stores verification. (iii) Knowledge of estimating and cost accounting, budgetary control, project evaluation etc., (iv) Knowledge of project planning, monitoring involving preparation of feasibility project reports. Should be conversant with PERT, CPM cost benefit analysis.

3. SUPERINTENDING ENGINEER: Two posts (Unreserved). Posts will be filled on deputation basis.
Educational Qualifications & Experience: Degree in Engineering with specialization in Electrical/Electronics/ Communication Engineering or equivalent. 12 years experience in NCERT and/or All India Radio or Doordarshan or in Industry of which 5 years should be in the rank of Senior Engineer or Station Engineer or equivalent actively engaged in Production, Planning and Development work relating to Radio and TV broadcasting.

4. ASSISTANT ENGINEER: Two posts (Reserved for SC)
Educational Qualifications & Experience: (i) Degree in Electrical Engineering/ Electronics / Electrical Communication Engineering or M.Sc. degree in Physics with Wireless Communication or Electronics as a special subject from a recognised University or equivalent (ii) 3 years experience in operation and maintenance of TV/ Broadcasting Studios in a responsible capacity.

5. TV PRODUCER Gr. I: One post (Reserved for SC)
Educational Qualifications & Experience: Essential: (i) Degree from a recognised University. (ii) Degree/Diploma in film direction or TV Production from recognised institution with experience in Film/TV production for 3 years OR 8 years experience of making Film/TV programmes. **Desirable:** (i) Experience of production of TV programmes. (ii) Experience of teaching in educational institution.

6. ENGINEERING ASSISTANT: Two posts (Un-reserved)
Educational Qualifications & Experience: Essential: Diploma in Radio/Telecommunication/Electrical/Electronic/ Communication Engineering recognised by the Govt. of India or degree with Physics as one of the subject from a recognised University or degree in Electrical Engineering from a recognised University or equivalent degree or diploma in Sound Recording and Sound Engineering awarded by the Film and Television Institute of Poona. **Desirable:** (i) Knowledge of Wireless or Radio Engineering (ii) At least 3 years of working experience in TV/Radio Studio or similar recording set up in any organisation.

7. TV PRODUCER GR. II: One post (Reserved for ST)
Educational Qualifications & Experience: Essential: (i) Degree from a recognised University (ii) Diploma in Film direction or TV Production from a recognised institute OR "3 years experience in direction/production of Film/TV Programmes."

8. CAMERAMAN GR. II: One post (Reserved for SC)
Educational Qualifications & Experience: Essential: (i) Matric or equivalent (ii) Diploma or certificate from a recognised Institute where the course of studies includes theoretical aspect of still photography, cinematography and film production. OR "seven years practical experience in different aspects of still photography and motion-picture photography such as shooting, developing, printing, editing, dubbing, sound recording etc." (iii) Two years experience of handling still and movie cameras and film production. (iv) Experience in supervision of photographic laboratory. **Desirable:** At least three years experience in shooting films and art work required in film production.

9. ARTIST GR. II: One post (Reserved for SC)
Educational Qualifications & Experience: (i) A degree or a diploma in Art from a recognised institution. (ii) At least 2 years experience in the preparation of Black and White and colour illustrations, cover designs etc. for books and periodicals in a publishing house of repute. (iii) Some working knowledge of either Printing Techniques or Photography and its application to designing. **NOTE:** The condition of a degree or diploma in Commercial Art or Art as the case may be from a recognised institution would be relaxable in case of really outstanding persons.

10. AUDIO-RADIO PRODUCER GR. III: One post (Reserved for SC)
Educational Qualifications & Experience: Essential: (i) Degree from a recognised University (ii) Three years experience in research for writing radio scripts or collection of data and materials for writing books. **Desirable:** Familiarity with operation of audio equipment.

		Scale of Pay	**Age limit as on 1.6.1990**
1.	Chief Editor	3000-5000	Below 45 years
2.	Senior Technical Officer	3000-4500	Below 45 years
3.	Superintending Engineer	3700-5000	(on deputation basis)
4.	Assistant Engineer	2200-4000	35 years
5.	TV Producer Gr. I	2200-4000	35 years
6.	Engineering Assistant	1640-2900	35 years
7.	TV Producer Gr. II	1640-2900	35 years
8.	Cameraman Gr. II	1640-2900	35 years
9.	Artist Gr. II	1640-2900	Below 30 years
10.	Audio-Radio Producer Gr. III	1400-2300	30 years

NOTE: (a) Some of these posts are temporary but likely to continue, (b) There is no age limit for the employees of the Council. Age concession allowed for SC/ST candidates as per Govt. of India instructions, (c) The number of vacancies is tentative and is liable to change, (d) The selected candidates can be transferred to any of the establishments of the Council, anywhere in India, (e) If a candidate is found to be of exceptional merit, relaxation of qualifications, experience, age etc. may be given by the Selection Committee in its discretion, (f) The prescribed qualifications are minimum and possession of the same does not entitle candidates to be called for interview when the number of applications received in response to the advertisement is large, it will not be possible or convenient for the Council to interview all these candidates. The Council may then restrict the number of candidates for interview to a reasonable limit on the basis of qualification experience higher than the minimum prescribed in the advertisement. **Application forms can be obtained from the Secretary, National Council of Educational Research and Training (NCERT), Recruitment—III, Dr. Zakir Hussain Khand, Vth floor, Room No. 8, Sri Aurobindo Marg, New Delhi-110016.** enclosing an unstamped envelope (23cm × 10cm) giving name of the post, serial number and advertisement number. The outer cover should be marked—'Request for application form'. Separate application should be submitted for each post. Those employed in Govt./Semi-Govt./Autonomous Organisations should send their applications through proper channel. They may, however, if they so desire, submit advance copy of their application direct to the Council enclosing the application fee, if applicable. Completed application form alongwith attested copies of certificates of qualifications and experience etc. and a crossed Indian Postal Order for Rs. 8/- (no fee for SC/ST candidates) in favour of **Secretary, NCERT** should reach him by **1.10.90.** Application received without prescribed fee and/or received after the closing date will not be entertained.

Secretary,
National Council of Educational Research and Training,
Sri Aurobindo Marg,
New Delhi-110016.

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INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited **upto 30.9.1990** for one post of Senior Research Officer (Medical) in the scale of pay of Rs. 3000-100-3500-125-4500 in the Hqs. Office of the Council, New Delhi.

Qualification & Experience: Essential: (i) MBBS from a recognised university with at least 6 years research experience on clinical/experimental evaluation of Medicinal plants/traditional remedies in a reputed teaching/research institute/agency. **OR** (ii) Doctorate or equivalent postgraduate degree in a bio-medical subject (like Medicine, Paediatrics, Pharmacology, Pathology and related disciplines) with two years research experience preferably in clinical/experimental evaluation of medicinal plants/traditional remedies.

Those who do not possess the minimum basic qualification in modern medicine (i.e. MBBS) and those who had already applied for the post in response to earlier advertisements need not apply.

Desirable: A doctorate or equivalent postgraduate medical qualification.

Job Description: The incumbent is expected to assist in: (a) Monitoring ongoing Clinical and experimental studies on selected traditional remedies/medicinal plants in different parts of India. (b) Managerial and technical aspects of research strategies of ICMR in the field of traditional medicine research.

Age: Below 45 years. (including relaxation for SC/ST).

Conditions: Candidates called for interview will be paid 2nd class return rail fare on production of documents. Non-practising allowance is admissible to only Medical Graduates as per rules of the Council. **Private practice is not allowed.** Service under the Council is pensionable. The period of experience prescribed is relaxable at the discretion of the competent authority.

Application from employees working in Govt. Departments, Public Sector Organisations and Govt. funded research agencies should be forwarded through proper channel.

Application forms and other details can be obtained from the office of the **Director-General, Indian Council of Medical Research, Ansari Nagar, New Delhi-110 029** to whom completed Application should be sent alongwith a Crossed Indian Postal Order for Rs. 8/- payable to Director General, Indian Council of Medical Research, New Delhi-110 029.

SC/ST candidates are exempted from this payment. Incomplete and late applications will not be entertained.

TATA INSTITUTE OF SOCIAL SCIENCES

DEONAR, BOMBAY-400 088

announces

Post M.A. Certificate in Research Methodology

One Semester Programme

Commencing from November 15, 1990

Eligibility: Master's Degree in one of the social sciences or social work of a recognised university with at least an overall of 50 per cent of the marks or an average 'C' grade (i.e. at least 3.00 in the seven point scale). Candidates who have appeared for the qualifying examination may apply in anticipation of their results. The minimum requirements in terms of marks or grades at the Master's level (or B.A., B.Com., B.S.W. level, if the Master's level results are pending) will be relaxed to 45% of the aggregate marks or a minimum of 'C' grade (i.e. at least 2.50 in the seven point scale) in favour of the SC/ST applicants only.

Reservation for SC/ST: 15% for SC and 7.5% for ST.

Objectives: The programme is designed specially to equip post M.A. scholars with the requisite knowledge and skills in social research methodology so that they can carry out research projects (doctoral and other) with competence and confidence.

A copy of the prospectus and application can be obtained from the Assistant Registrar (Academic) of the Institute by sending a Demand Draft of a Bank for Rs. 25/- in favour of the Institute.

The last date for the receipt of the completed application form with registration fee of Rs. 25/- is **October 12, 1990.**

August 13, 1990

Dr. S.K. Bandyopadhyay
REGISTRAR

NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

Wanted Scripts for Children's Educational T.V. Programmes

Central Institute of Educational Technology (CIET), a constituent unit of National Council of Educational Research and Training (NCERT), invites scripts for Children's Educational T.V. Programmes.

The scripts should be in **Hindi** on such topics/themes as Health, Environment, Science, Social Studies, Mathematics etc. of relevance to both in-school and out-of-school children in the age groups of 5-8 OR 9-11 years. The scripts should be written in lucid and spoken style, comprehensible to children, and help in making 20 minutes films. The aim of the TV programmes to be made will be to:

(1) ***Motivate and encourage children to experiment, explore, ask questions and 'learn by doing'.***

(2) ***Extend the knowledge of children beyond textbooks and so should provide content enrichment, joy of learning and help in developing creativity, desirable values, habits and attitudes—without preaching.***

Each script selected by CIET will be paid Rs. 1000/- and will become the property of CIET (NCERT). The organisation reserves all the rights to select or reject scripts and its decision will be final.

Intending entrants may send their **script by December 31, 1990 to**

Joint Director
CENTRAL INSTITUTE OF
EDUCATIONAL TECHNOLOGY
NCERT Campus,
Sri Aurobindo Marg,
New Delhi-110016.

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REGIONAL ENGINEERING COLLEGE

G.T. Road, Bye Pass, Jalandhar

Advertisement No. 8/90

Applications for the following posts are invited on prescribed forms which can be obtained by sending Indian Postal Order payable at Jalandhar in favour of the Principal, Regional Engineering College, Jalandhar for Rs. 5/- alongwith a self-addressed unstamped envelope of size 27cm × 12cm. The applications complete in all respect should reach the Registrar by **30.9.1990**

PROFESSOR: (Scale Rs. 4500-7300)

1. Electronics & Comm. Engg. 2. Chemical & Bio-Engg. 3. Instrumentation & Control Engg. 4. Computer Science & Engg. 5. Textile Engg. 6. Mechanical Machine Design & Automation Engg.

ASSISTANT PROFESSOR: (Scale: Rs. 3700-5700)

1. Electronics & Comm. Engg. 2. Chemical & Bio-Engg. 3. Instrumentation & Control Engg. 4. Computer Science & Engg. 5. Industrial Engg.

LECTURERS: (Scale Rs. 2200-4000)

1. Chemical & Bio-Engg. 2. Instrumentation & Control Engg. 3. Computer Science & Engg. 4. Humanities & Management 5. Industrial Engg. 6. Structural Engg. & Construction Management 7. Textile Engg.

Qualification and Experience: The details of qualifications and experience required for each post shall be supplied alongwith the application form.

REGISTRAR

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CLASSIFIED ADVERTISEMENTS

NIZAM'S INSTITUTE OF MEDICAL SCIENCE

(A University established under the State Act)

PANJAGUTTA: HYDERABAD 482, A.P.

Dated: 21.8.1990

EMPLOYMENT NOTIFICATION

Applications are invited for the following posts on or before 15.9.1990.

1. Associate Professor
(2100-100-2600)

One post each in Anaesthesiology and Gastroenterology

2. Asstt. Prof. Gr.II
(1500-60-2040)

Three posts in Anaesthesiology and one post in Gastroenterology

3. Senior Residents in Anaesthesiology, Cardiology and Medicine
(Rs. 3300/- consolidated)

Application forms, details of qualifications and experience required for the above posts can be had by sending a Demand Draft for Rs. 50/- in favour of Director, N.I.M.S. along with a self-addressed stamped envelope of Rs. 5/-.

The Institute reserves the right either to fill up or not to fill up any of the posts advertised.

Dr. I. Dinakar
DIRECTOR I/c

इन्दिरा गांधी राष्ट्रीय मुक्त विश्वविद्यालय

INDIRA GANDHI NATIONAL OPEN UNIVERSITY

Applications are invited from Indian citizens for filling up the following posts in the Indira Gandhi National Open University:

(1) PROFESSOR/EDITOR

English, Commerce, Life Sciences, Mathematics, Public Administration, Women's Education, Distance Education (H.R.D. Training), Sociology, History, Education.

Scale of Pay: Rs. 4500-150-5700-200-7300 plus usual allowances as admissible under the University rules.

PROFESSORS

Qualifications: Essential: An eminent scholar with published work of high quality (in the relevant subject) actively engaged in research. About ten years experience of teaching, research and/or extension. Experience of guiding research at doctoral level.

OR

An outstanding scholar with established reputation who has made significant contribution to knowledge (in the relevant subject).

Professor (Women's Education)

In addition to the essential qualifications mentioned above, the person concerned should have considerable experience in Women's Education, Women's Studies or any other relevant areas.

Professor in Distance Education (Training)

In Addition to the essential qualifications mentioned above the person concerned should have had experience in major programmes of training/human resource development of an innovative nature. Experience in education would be preferred.

Editor

(a) An eminent scholar with published work of high quality actively engaged in research, or
(b) First or high second class Master's Degree in English/Mass Communication/Journalism/Linguistics with Ph.D. or published work or equivalent merit, and a high level of competence in English, and
(c) About ten years experience of teaching/research, and
(d) Experience in editing academic publications or University level text-books in a reputed organisation.

(2) READERS

Commerce, English (Editing), Life Sciences, Mathematics, Public Administration, Women's Education, Distance Education, Creative Writing (English) Engineering & Technology, Computer Science, Economics, Political Science, Rural Development, Hindi.

Scale of Pay: Rs. 3700-125-4950-150-5700 plus usual allowances as admissible under the University rules.

Qualifications: (For posts other than those in Engineering & Technology, and Computer Science).

Essential:

(a) Good academic record with a doctoral degree or equivalent published work (in the relevant field). Evidence of being actively engaged in research, innovation in teaching methods or production of teaching materials.
(b) About five years experience of teaching, research and/or extension, of which at least three years should be as Lecturer or in an equivalent position.

In addition to the essential qualifications mentioned above for the posts of Readers, the candidates applying for the following posts should also have the qualifications/specialisation indicated against each:

Reader in English

Specialisation in English language teaching and/or Linguistics.

Reader in Creative Writing (English)

Should be an established author who has made significant contribution to creativity in language and literature.

Reader in Hindi

Specialisation in Hindi language teaching and/or Linguistics and in any field of applied linguistics.

Reader in Rural Development

Master's Degree in Social Work/Political Science/ Economics/Public Administration/Sociology/ Agricultural Extension/Agricultural Economics provided the persons concerned have specialised in Rural Development in their research or Post-M.A. work.

Reader in Women's Education

Master's Degree in Home Science/Nutrition Science/ Child Development provided the persons concerned have specialised in areas relevant to women's education after their Master's Degree.

Reader in Distance Education

Experience in programme evaluation, field research and systems design and development.

Reader in English (Editing)

About five years experience in editing University level text-books in a reputed organisation or those who have a high level competence in English and have five years experience in editing journals, or other academic publications.

Reader in Computer Sciences

(a) First Class Master's degree in Computer Science or First Class Master's degree in any discipline with a Diploma in Computer Science.

(b) About five years experience in Computer System Development, Computer Programming and in conducting Training Programmes in Computer Science/Data Communications/Computer Systems models and performance evaluation/Software Engineering/Artificial Intelligence/Knowledge based systems/Pattern recognition/Digital Image Process/Micro Computer Architecture and Computer graphics. Excellent oral and written communication ability.

Reader in Engineering & Technology

(a) First class Master's Degree in any one of the following areas: Water Resources/Agricultural Engineering, Construction Technology/Structural Engineering; Mechanical or Industrial Engineering; and Electrical/Electronics Engineering.

(b) About five years minimum experience (three years in case of Ph.D.) inclusive of teaching and/or production of teaching material and relevant field/ maintenance experience at supervisory and management levels in industry.

(c) Exceptional cases of academic merit and experience will be given due consideration.

The following general condition is applicable to all posts.

Additional Qualifications: Experience and proven ability in imparting education through various communications media and innovation in distance teaching methods and materials.

Note: (1) It will be open to the University to consider the names of suitable candidates who may not have applied. (2) Relaxation of any of the qualifications may be made in exceptional cases in respect of all the posts on the recommendations of the Selection Committee. (3) Canvassing in any form by or on behalf of the candidates will be a disqualification. (4) Candidates from outside Delhi, when called for interview will be paid to and fro second class rail fare. (5) The University reserves the right not to fill up any of the vacancies advertised if the circumstances so warrant.

The prescribed application forms can be had from the office of the Director (Teachers' Affairs) located in Block No. 4, Room No. 20, Indira Gandhi National Open University, Maidan Garhi, New Delhi 110068.

The prescribed application form can be had by post also from the above address on written request accompanied by a self-addressed and stamped envelope (size 28 × 13 cms) bearing postage stamps of Rs. 4/-. **Requests not accompanied by stamped self-addressed envelope will not be considered.**

Applications duly completed along with attested copies of degrees, other certificates, marks-sheet, published research articles etc. should reach the following address by **15th September 1990:**

Director (Teachers' Affairs)
Indira Gandhi National Open University
Maidan Garhi, IGNOU Post Office, New Delhi 110068

The candidates will have to produce the original documents relating to their age, qualifications, experience etc. at the time of interview.

Those who have already applied in response to our earlier advertisement of October 1988 for the posts of Profesor in English, Mathematics, Professor/Editor, and for the posts of Reader in Mathematics & Women's Education need not apply. However, they may update their bio-data if they so wish.

Applications incomplete in any respect, and those received after the due date shall not be entertained.

REGISTRAR

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